

SINCLAIR QL WORLD

6 8
11 15
23 29

Volume 3 Issue 4 Price £2.50

Adventure '93
SQLUG wave
adventure pack

QL Calender
Zeller's Congruence

Black Knight
Pointer Chess
from Jochern Merz

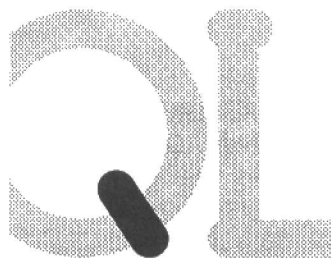
DIY Toolkit
"Packbits"



ISSN 0951-9335



9 770951 933023



Contents

VOL. 3 ISSUE 4

Editor

Helen Armstrong

Publisher

Mark Kaspruwicz

Advertising Manager

Jim Peskett

Creative Director

John Stanley

Graphic Artist

Stevie Billington

Magazine Services

Linda Miller, Frances Maxwell,

Pauline Wakeling

Val Brandon

Sinclair QL World,
Published by Arcwind Ltd.
The Blue Barn,
Tew Lane, Wootton,
Woodstock,
Oxon. OX7 1HA
Tel: 0993 811181
Fax: 0993 811481
ISSN 026806X

If you have any comments or difficulties please write to the editor and we will do our best to deal with your problem in the magazine, though we cannot guarantee individual replies. Back issues are available from the publisher price £2.50 UK, £2.99 Europe. Overseas rates on request.

Subscriptions from: Arcwind
The Blue Barn, Tew Lane,
Wootton, Woodstock, Oxon. OX7 1HA
UK: £23.40
Europe: £32.90
Rest of World: £40.90

Reprographic Services: Eclipse, Brook Street, Watlington, Oxon. OX9 5JH.
Distributed by: Seymour Press Ltd, Windsor House, 1270 London Road, Norbury, London, SW16 4DH

© 1994 ARCWIND LTD.
Sinclair QL World is published 12 times a year. All rights reserved. Reproduction in whole or in part without written permission is strictly prohibited. We welcome contributions. All material must be supplied with a SAE.

While all reasonable care is taken in compiling QL World, the publisher and its agents assume no responsibility in affects arising therefrom. Opinions expressed are those of the authors.

6 QL SCENE

QL All-Traders Fair in London - Tony Firshman is liaison ... Bill Richardson of WNR/EEC - new address ... Bristol Radio Rally ... Address Book and Labeller fully revised ... New SuperBasic development software from Merz ... Ergon now on Fax ... Arcplus Archive upgrade for the PC - more news.

8 OPEN CHANNEL

Scrabble breakdown ... Psion Chess breakdown ... Taskmaster breakdown. What's going on! BBS and PD software ... Linking the PC/QL and Thor.

11 TROUBLESHOOTER

Bryan Davies ponders on the benefits of the Super Gold Card and QXL.

14 INSTANT ACCESS

Fully updated guide to your software and hardware suppliers.

14 CLUB ACCESS

QL Contacts Worldwide.

15 THE NEW USER GUIDE - part 35

Mike Lloyd continues with Arrays, Basic and the QL Clock.

19 REVIEW: BLACK KNIGHT, MINE FIELD, THE ORACLE

Ian Bruntlett tries three new games on a classic pattern.

21 REVIEW: ADVENTURE 93

Bruce Nicholls ventures into SQLUGs games landscapes.

23 DIY TOOLKIT

Simon Goodwin skips The Browser for a month to digress into PACKBITS data compression.

29 QL CALENDAR

Dilwyn Jones implements Zeller's Congruence in a calendar routine.

31 MICRO ADS

Coming Soon

Linear Regression for mathematicians ... Biorhythm program ... Beyond Quill (a short series) ... Dennis's Keyboards.

QL Scene

BRISTOL RADIO RALLY

On Sunday 26th June 1994 the **Bristol Radio Group** (members of the Radio Society of Great Britain) are holding the 37th Longleat Amateur Radio Rally from 10am at Longleat Park (go to **Longleat House, not the Safari Park**), near Warminster in Wiltshire. Last year over 5,000 people attended the rally, which, as well as radio and electronics equipment and spares, is now featuring more and more computer-related suppliers, including a large Bring and Buy section.

For non-radio, non-computerised members of the family, there is a large Craft Fair, refreshments, and the Safari Park and House nearby, as well as extensive parkland. Camping is available through the *Longleat Caravan Club* on 0985 844663.

Admission to the grounds and rally are £2.50 for adults, £1.50 for pensioners and 50p for children, the same as last year.

For further information, including table bookings for traders, contact **Shaun O'Sullivan, 15 Witney Close, Saltford, Bristol BS18 3DX**. Tel. 0272 860422, Fax 0272 869387.

OYEZ! ALL-TRADERS FAIR IN LONDON!

UK traders will be banding together to hold a **TRADERS' QL FAIR** on **Saturday 25th June at St. Helena's Church Hall, St. Quintin Avenue, London W10** from 10am to 4pm. It is hoped that all the UK QL traders will be there, and possibly visitors from overseas as well.

There will be a separate room for lectures and demonstrations.

QL owners can come along and set up their own systems on a first-come, first-served basis. Entrance is free, parking is free, and Ladbroke Grove tube is about 10 minutes away. And if you get into the area really early, it's a good time to walk round the Portobello Road market before all the good stuff goes.

This is a first-class idea, now that the All Formats Fairs have less and less to offer to QL users, especially in the London area, and we hope as many people as possible will have a chance to go along.

More information from **Tony Firshman at TF Services, Holly Corner, Priory Road, Chavey Down, Ascot, Berks SL5 8RL**. Tel. 0344 890986. Fax 0344 890987.

BILL CHANGES HIS OFFICE

Stalwart Bill Richardson of WN Richardson & Co. (EEC) has **moved** his business to a new address. Find him in future at:

**6 Ravensmead
Chalfont-St-Peter
Buckinghamshire SL9 0NB**

**Tel. 0494 871319
Fax 0753 892235**

The old phone number will continue in use for the time being, but will only be manned by the answering machine.

Miracle In Newport

*It's never too late! If you've just won the pools or had your pocket money upped (and our mailers haven't gone completely berserk) then there's still time to get to **Miracle In Newport, Rhode Island, USA**, Saturday 14th May, \$7US on the door. Call **Bob Dyl** on +1 401 849 3805 for information. Coffee and donuts Sunday morning (Americans take the ough out of doughnuts).*

"ADDRESS BOOK" FULLY REVISED

DJC's **Address Book and Label** utility has been upgraded to version 13. It now includes a Birthdays facility to allow you to add birthday dates to names and addresses, and select entries on the basis of month or between given dates in a month - handy if you want to avoid a ding-dong over a forgotten date.

You can now also insert blank lines between full-page-width entries.

Address Book is an easy-to-use program based on **Archive** for recording names, addresses and a few notes. It allows printing-out on various sizes of labels, and among other things avoids "empty lines" when printing out short addresses.

The picture here shows all the commands and facilities on the menu from which the whole program is operated. There are also some sub-menus with further choices.

Address Book and Label Printer costs £15 (plus £1 for overseas airmail postage). Upgrades from earlier versions cost just £2 - send back your master disk and you will receive the upgrade and a new manual.

Dilwyn Jones Computing, 41 Bro Emrys, Tal-y-Bont, Bangor, Gwynedd, LL57 3YT, UK. Tel 0248 354023.

NEW SUPERBASIC DEVELOPMENT TOOL

Once more, from the man in Im Stillen Winkel - **QBasic**, a brand new product. QBasic is a Thing for QD - a connection between QD and QLiberator, an interface and parser in one. Having typed or loaded your SuperBasic program into **QD**, you can use QD's facilities for editing. To compile and run, you can use F10, with a choice of Compile options. The parser will check the syntax of the program, and identify the location of any errors it finds. Otherwise, it generates a **QLiberator**-compatible work file, and calls **QLib** to compile and execute.

The basic requirements to use QBasic are QD 5 or 6 and QLiberator 3.30 or higher. QBasic costs DM49.90, with bundling options if you want QD and/or **QLib**.

One minor snag which Jochen draws attention to is that **WHEN** constructs are not parsed correctly. This will not, he feels, incommode very many users. Contact Jochen for answers and more information.

Further to this, Merz's **QMON** and **JMON** now work on all 680x0 processors, from the 68000 up to the 68030 and 68040. They handle all stack frame formats, so that debugging, tracing etc. can be done in Supervisor mode on higher processors. **JMON** now has all the facilities of **QMON**, but does not rely on SuperBasic windows, having its own, movable, windows, which can be put in a button frame for easy breaking and re-awaking. Permanent breakpoints and trap levels can be specified. Merz recommends the system for development under the **Pointer Environment**, with an many independent debuggers as you need in their own windows. The only caveat is that the debugger does not handle the extended instruction set of the 68020/030/040.

The English version of **QMON** and **JMON** are handled by **Digital Precision**, 222 The Avenue, London E4 9SE, tel. 081 527 5493, and the German version by Merz. A special upgrade price is available for users of the original **QJump QMON** (2.00 to 2.03): German or English versions can be upgraded for DM32.90 via Jochen Merz's address. Return the master disk for upgrade to **Jochen Merz Software**, Im Stillen Winkel 12, D-47169 Duisberg, Germany. Tel. 010 49 203 50 12 74.

ERGON NOW ON FAX

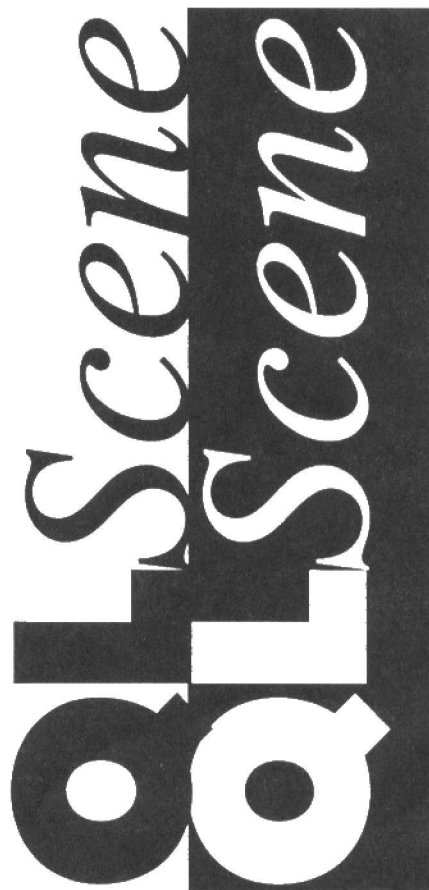
Ergon Development can now take **fax calls**, thanks to **QFAX**, on their regular number (+39 522 70409). Best times are between 1800 to 2000 GMT Monday to Friday, 0900 to 1300 Saturday and 0900 to 1900 Sunday (the latter time has lower phone charges from many countries).

All Ergon's programs have been modified to run on any QL-compatible with any resolution. (At present only the **QXL** and **QVME** allow extra resolution, but they will also be fully compatible with the **Miracle** graphic card). They are already fully compatible with the 68020 of the **Super Gold Card**, the **Atari QVME** (68000 on **STE** or 68030 on **TT**) and the **QXL 68040**.

Ergon's **ZX Spectrum emulator range** has been rationalised to the **ZM/128** and the **ZM/hT** systems. The first is now the **ZM/128**, a 102-page manual and accessories/conversion programs. The second is also the superfast **ZM/hT** compiler (full **ZX** supported on **Gold Cards**). Ergon recommends users to get the upgrade which also has a laser-printed manual with step by step examples. See **Dilwyn Jones** for range and prices.

The **Ergon demo disk** is now a fully revised **V5.1**, and includes demo versions of **MasterBasic**, **QLM**, **DEA**, **Open World** and **Floppy Disk Utilities**. The **Zx eMulator** demo disk has also been brought up to date, and also contains some utilities and games. Send six **IRCs** to Ergon for the demo disks.

Just to remind everyone: **Dilwyn Jones** is now Ergon's dealer in the UK, apart from upgrades for existing users, which **MUST** go through Ergon themselves. Contact at **Davide Santachiara**, Via **Emilio De Marchi 2**, 42100 Reggio Emilia, Italy.



ARCHIVE UPGRADE FOR PC

Transform Ltd. of 7c **Station Approach**, **Hayes**, **Kent BR2 7EQ** are promoting **Arcplus**, a "considerably enhanced" version of **Archive** for use on the **PC**.

Arcplus was developed several years ago and has been quietly updated since. The most recent improvements have been substantial and include **On-Line Help**, context-sensitive within the editor, and access to more memory. If not enough **Extended** and **Expanded** memory is available, **Arcplus** gives the **Virtual Memory** code back to **DOS** to maximise the **DOS** memory.

Interested users should contact **Transform** on **081 462 4666** (fax **081 462 3971**) for current prices and a list of functions, etc. The current upgrade price for existing users with versions dating up to 1 January 1993 is £75 plus VAT, £10 plus VAT after 1 January 1993. Manuals cost £25.

OPEN CHANNEL

Scrabble

I wonder if any of your readers could help me find a **copy of the Scrabble program** for the QL? My wife is a keen player, has seen the PC version, and would like something similar! If possible I would like it on disk - I was lent a copy once, but had problems because it needed MDV2. Since I bought a 3.5in disk drive I haven't used the microdrives and MDV2 doesn't work.

I have had my QL (JS rom) since 1985, with a Microvitec colour monitor, and have now added the disk drive, Gold Card, and an Epson Stylus 800 inkjet printer, mainly used with Perfection as a club secretary. I can recommend it all, particularly the **Gold Card**. Before I fitted it in 1992, I used to get crashes every time I used the QL,

none at all since, touch wood!

**Robin M Milford
Hedge End
Southampton**

Even though somebody asks us quite regularly about Scrabble for the QL, no-one seems to be publishing it. Maybe someone can help Robin with Scrabble, but how about one of our software publishers putting it back on the market again?

Psion Chess

On Saturday 12 February I spent an enjoyable and enlightening day at the **Quanta Scottish Workshop** in Edinburgh. What struck me most was just how friendly and helpful were members of the QL fraternity. Dilwyn Jones remembered my name from telephone orders of QL programs, and it was good to meet him face to face. Bill Richardson was more than helpful.

I was very pleased to be able to buy a second-user copy of Psion Chess. Sadly, when I got it home and tried to run it, the dreaded "**bad or changed medium**" came up on screen. Nothing I tried would recover the file which was corrupt - 'chessc'. Even Cartridge Doctor did not succeed.

Then I tried copying files to disk simply by using **Ice**, and Lo and behold, it worked! Psion Chess is terrific as far as I am concerned, and it's a great pity it is no longer available commercially. So old ways are not so bad, as Miracle indicate by incorporating a parallel interface in their Super Gold Card, which was released at the Workshop. (The Super Qboard also had one.)

For those who might come across a second-user copy of Psion Chess, it is as well to know that it won't run on an expanded

QL, so you need to use a utility to make the QL 'think' it only has 128K of memory. Gold Card has such a utility in RES_128.

All in all an excellent day. The QL is far from dead!

**James C McGreehin
Alva
Scotland**

The residents of much of Scotland may be spread thinly compared to, say, Birmingham or London, but when they have a day out, they do it properly. Ice may be old-fashioned now, but it was an extremely useful utility which always worked well. For those who are tempted to fret at compatibility problems, I know several commercial PC users who have to use strata-gems to "convince" one program that it is working with an earlier version of another program, because the programmers have not allowed for the one to recognise updated version numbers for the other!

Taskmaster

I am a new subscriber to QL World. To give you some background, my father purchased the QL **back in 1984** and, in turn, it has been passed to me. I regard myself as QL enthusiast and have back copies of QL World/QL User from 1985 to 1987 inclusive.

However, my main objective is to be in contact with other QL users and identify the route in which I can obtain further and replacement software.

I have had the recent misfortune of "**trashing**" my **Taskmaster**, and am unable to obtain a copy from my "master", as that seems to have been corrupted. Additionally, I am on the lookout for another copy of **Archive**, as, again, I am having difficulty in copying my microdrive master to obtain a working

copy I keep getting "bad line or changed medium." As well as having microdrives, I also have a "double/twin" 3.5in Cumana disk drive facility.

I look forward to receiving the March issue of **QL World** and would be grateful if you could give me details of how to obtain back issues.

**Alan Knell
Allesley
Coventry**

So many corrupted files and changed mediums this month! Is it the weather? If you are looking for software, you should get catalogues from Dilwyn Jones (back cover), Qubbesoft and SJPD (see Instant Access). The latter two are public domain dealers and also stock some backissues of QL World. Digital Precision also have a long list of software but put most of the details in their advertisement in QL World. Jochen Merz advertises every couple of months, and you will find information on smaller publishers in QL Scene whenever they issue something new, or an upgrade. Archive is now available in the Xchange version from PD dealers. A reader may be able to help you with reconstituting your trashed programs, otherwise. You should also contact the QL User Group (West Midlands) via Mike Bedford-White, 16 Westfield Road, Acocks Green, Birmingham B27 7TL, who meet regularly in Birmingham, which is not far from you.

Arcwind has back issues back to May 1991, but unfortunately all the copies belonging to the previous publisher were removed and trashed (unreconstitutably) when they moved offices - a great pity, it happened one day when we weren't looking. Copies do crop up at fairs, through.

Open Channel is where you have the opportunity to voice your opinions in Sinclair QL World. Whether you want to ask for help with a technical problem, provide somebody with an answer, or just sound off about something which bothers you, write to: Open Channel, QL World, The Blue Barn, Tew Lane, Wootton, Woodstock OX7 1HA.

PC/QL/Thor

One of the projects that I have been attempting, between my existing projects on the PC, is to **use the PC to control the QL/Thor**. It has occurred to me that it should be possible via a serial link that the PC could in effect become a remote terminal for the QL. It would save considerable space on the desktop, allowing a keyboard and a monitor to be removed. With large amounts of people now being forced onto PCs due to the unstoppable rise of the PC both at work and home, this sort of system may allow the use of both side by side in the same way as the QXL, thus helping to keep the QL in action. I wonder whether this project might be worth consideration by Simon for a future article.

Bob Gillett
Torquay
Devon

*Getting the QL to colonise or run alongside the PC has already occupied a fair amount of thought among dual users. If you haven't done so already, you should investigate **QL File Server**, by Di_ren, sold by Dilwyn Jones Software (details on back cover). I've forwarded your Simon-specific queries for Simon's attention.*

Star Printer

In May 1993 I bought from Watford Electronics a

Star LC24-200 colour printer for £214 (including the colour ribbon). The monochrome version was about £50 cheaper. It works via Ser1 with the old Taxan/Kaga interface.

This has proved very recommendable. The 24-pin head produces LQ characters to a standard I think exceptional for a dot matrix printer, close to commercial printing. There are two modes, Standard and IBM. IBM modes have 7 character sets, of which 6 are accessible from my QL.

The **Standard mode** is factory-selected Epson-type, with the variations for 16 International Character sets. The DIP switches are on the top of the machine in front, but the works are so attuned to software commands that I rarely find it necessary to touch them.

My wordprocessor is **The Editor**, into which I can insert the commands and see exactly what I have done. Then all I have to do is enter "w.ser1" and the printer starts to rol. I do not have to Save, if that is not required, so control is entirely from the keyboard without need of a driver.

If your wordprocessor accepts print codes directly into the text, then there are many fancy things this printer can produce in the expanded print range. In Quill, one is limited by the number of translate options, but everything which Quill commands, the LC24-200 will do.

So this is the printer for both the beginner and

the doyen who wants a professional-looking document.

A printer driver is required, of course, in **Professional Publisher**, and it is necessary to amend ProPub's driver, referring to the printer manual and the ProPub manual for things like line feeds. There is no problem here at all. The Star LC24-200 has a complete range of **graphics commands**. There is one thing it does with ProPub, however, and that is to vertically stretch the page somewhat. One has to remember this when drawing circles.

Another useful facility is paper parking. One keeps fanfold paper permanently threaded in the machine while one can use cut sheets. Switching to each type of paper is controlled by the paper release lever.

The manual has complete instructions and software codes, well laid out and easy to understand.

The machine has four different font sets built in, and four extra cartridges are available for another 11 fonts at a price of £25 per cartr idge (1993).

The built-in fonts are Roman, Sanserif, Script and Courier. Characters per inch are a choice of 20, 17, 15, 12 and 10, plus double and quadruple size characters. As well as normal printing, outline and shadow characters are also obtainable. Italics are available for all characters.

Peter Tomlin
Hatherley Grove
London W2

Thank you for the recommendation, Peter. Any others will be gratefully received by QL World and any bewildered would-be printer buyers.

Editor's notebook

Summer is finally here, and for the third time since QL World moved to Arcwind, the oilseed flowers are out in the fields of Oxfordshire, smacking passers-by in the eye with yellow and playing havoc with people's hayfever. I like oilseed flowers and don't get hayfever!

In the festive spirit, we have an accumulation of games this month. Very serious games, of course. Tower of Valagon is worth playing for its conversational value alone. See page 21.

Time to bag up a gross of goldfish for people who spotted our deliberate mistake. The good news is that it doesn't mess with anyone's listings (we have another department to do that).

Talking of goldfish - "Why join us for a QL good time?" ask IQLR about the Miracle show next month. There are lots of positive answers to that, but the real answer may be one of those three-letter words that's never there when you want it!

Troubleshooter

Bryan Davies speculates on the benefits of the new Super Gold Card and wonders about graphics cards.

It really is remarkable how much good stuff has been introduced during what might be called the twilight of the QL. Inevitably, we think "how different things would have been if that had been available from the start", but ten years have gone by and any new product has to be considered in the light of how many currently active QL users will buy it. The thought is prompted by the surprising new piece of hardware announced in QL World Volume 3.1 - the **Super Gold Card**.

Now we have another significant addition to the hardware. The Super Gold Card is a product of **Miracle Systems**, as would be expected, although the arrival of DP's advertising last-thing before the printing of QL World meant that Miracle were the last people to announce their own new product!

Digital Precision have also remained very true to the QL for a long time, and could be excused for not devoting much effort to developing new products now, but there continues to be a steady stream of new and re-vamped software from that direction too.

Two Options

For the benefit of anyone who has not read the adverts, the Super Gold Card is much faster and has more memory than the

GC, and has a parallel (printer) port too. It fits into the QL just as neatly, though. Visually, they are hard to tell apart!

Clearly, the Super Gold Card and the **QXL** card are competitive with each other, to some extent. The user who has hesitated to get involved with PCs now has the means to get an even-faster QL, without having to clear space for another large box.

Miracle make it clear that the QXL, not the Super Gold Card, represents their future path, but it is admitted that there are still basic development going on with the QXL. The SGC, on the other hand, can be expected to be a fully-working product.

At the time of writing (late April), the QXL still lacks a **Basic Interpreter** and has some trouble writing to disk drives. Late delivery of software to Miracle has convinced them that they should write their own in future (they have, in fact, done some software modifications for the SGC themselves).

On the subject of the small display size, it is hoped that programmers will modify their programs to make use of the full screen; Miracle do not see it as their task to do this. **Text87 Plus 4** and programs running under **QPac2** can make use of the larger screen.

In answer to a question from **David Owen**,

there has so far been no review of the QXL in QL World because Miracle don't want to release review hardware until they feel it is nearer its final state. This is a "philosophical" matter, my own feeling being that it is better to have some review in the early stages of a product's development, while it is still fresh in potential buyers' minds, and indeed the editor tells me that she has a user report in mind.

Multitasking

A couple of points in a previous Troubleshooter article brought comment from Miracle. Reference to OS/2 as a pre-emptive multi-tasking operating system was not intended to suggest that Qdos too does not allow the priority of running jobs to be set. The multi-tasking function existed in Qdos from the start, long before OS/2 was developed.

From the user's point of view, the control over Qdos priority is rather limited, however. You cannot easily preset priority for all the programs you want to run regularly.

In the early days, multi-tasking with the QL was very interesting, but not so useful when using substantial programs. The processing capacity and memory simply were not there.

The Super Gold Card now gives us both process-

ing power and plenty of ram, and will make multi-tasking - as opposed to simply switching programs - a more usable function.

The other point made by Miracle has had plenty of airings, without (so far as I am aware) producing a clear picture. The subject is **"disk caching"**. This expression has been common for at least six years.

The appropriate Qdos function is **"slave blocks"**. Both of them improve the effective read and write speed of disk drives. Blocks of information are stored in memory after use, and, if anything more is required from the same block, it is available at the speed of memory, rather than disk, access. It is a common feature of software operation that successive accesses to program files on disk frequently look

in much the same place, making it worthwhile to hang on to a block of data which has just been read from disk into memory. The next piece of data requested may well be within the same block.

Disk Caching

The relative speed of access of disk and memory is a large ratio. A fast hard disk drive has a nominal access time of the order of 5-10 milliseconds, whereas ram memory has a nominal access time of 60-70 nanoseconds.

There is much to be gained in performance by an effective disk caching function. The point I have made is that the average QL user has no control over the slave block function. If some other internal operation decides it wants to use the memory where the last disk data has been stored, that is that - the stored disk data is lost.

Presumably, the more memory there is the less chance there is of losing the slave block function this way. The 4 MB of the SGC may prove to increase the effectiveness of the caching function.

The size of the slave blocks is not under user control. The difference with a proper disk cache is that it is something the user can specify, and it will not be disrupted by other processes.

A good caching function allows the memory space reserved for disk data to be specified - 2 MB is a sensible figure to use in many environments - and the drives to be affected by caching can be identified. The form of caching can be set - for example, read-only or read and write.

Floppy drives can perform much faster with caching but errors are common if they are both write- and read- cached. It is also possible to perform a "look ahead", giving a predictive aspect to cache operation.

The SGC opens up several possibilities, because of its speed and its ram. It seems a pity that programmers have - over the years - shown relatively little interest in providing user-friendly utilities for the QL.

A disk cache would be useful, especially if it had a reporting function, to tell the user how effective it

was (recording the "cache hit and miss rate"). So would a housekeeping program, of the nature of Files 2 (from TaskMaster) but with a much better, graphical display, able to show many more files and the directories. A simple-to-use "disk doctor" program would be welcomed by many users.

By simple is meant something which does not require the user to understand anything of the internal structure of files, but merely presents him/her with as few as possible questions (and ones that can be easily answered). For example, "error found in sector containing file xxxxx - move data to good area on disk (Y/N)?".

Digital Precision has introduced version 5.14 of Perfection. The handling of large files - especially those with lots of short lines - has been improved, and (all, hopefully) end-of-file anomalies have been removed.

Other detail improvements have been made. DP has also taken on some more of the older QL software, from back in the **Eldersoft** days, and this should be appearing in their adverts. **Software87** has made further detail improvements to Text87 Plus 4, in connection with its use with LineDesign.

What You See

Good though it is to have another go-faster card, many users must be wishing that the development of improved graphics for the QL had higher priority. What would you say is the major factor in the success of certain other computers and categories of software? Surely, a **display** with higher resolution and more colours attracts the attention of users of all

ages. It is not just the kids who go crazy over fancy decoration!

How else do you explain the success of Windows software on the PC? Anything written to run under it is - by definition almost - slow. Text display is decidedly poor, unless you invest in an expensive display and driver card.

There is an endless list of drawbacks, but the claimed sales of Windows reached 40 million some time ago. A high proportion of the people who call me for help mention Windows. Many of them have only the foggiest notion of what "it" is, but they are convinced they have to have it.

Assuming you are not too bothered about getting any work done, there is a lot to be said for the Graphical User Interfaces. Maybe it is an extension of the "a picture is worth a thousand words" concept. Whatever the reason, many people seem to love icons, buttons, tool boxes, ribbons, bars, scroll bars and all the other paraphernalia that goes with a windowing environment.

Of course, we have that on the QL too, notably in the form of **QPac**, but the limited resolution and colours of the screen prevent anything very adventurous being done.

For example, you cannot get very many file names on the QL screen, but there is no problem getting 150-200 names on a 1024 x 768 pixels screen, all quite readable, and with room left for program information.

But... the cost is high. You need a 17-inch screen to make the text readable, and even then it is unlikely to be as easy on the eye as non-GUI text on a 14-inch screen. There is vastly more information to be

changed each time a new picture is required, and that means that the processing power has to be much higher to deliver the same speed.

The 14-inch screen will handle quite a bit more than the 512 x 256 pixels of the standard QL, though. You can get very good text and colour at 640 x 350 (EGA) and 640 x 480 (VGA); even 800 x 768 (SVGA) is good, with some displays and cards.

The next step, 1024 x 768, is simply too much for normal 14-inch displays to cope with. Can anyone give a categorical answer, on whether or not standard QL displays are actually capable of handling greater resolution and more colours? If the answer is no, a worthwhile new graphics card is going to entail a new display too, and that means serious money.

Odds and Ends

Reader **David Owen**, in Dubai, has a QXL card installed in a 33/66 MHz PC, with access to a 512 MB hard disk. He is using it in a network, with a standard JS QL that is fitted with a Gold Card and ED drives. For printing, he has an Epson EPL 7100 laser. The printout is fine unless he uses the FSERVE command in part of the boot routine.

With that command activated, there is intermittent corruption of the print; some characters are incorrect, line feeds and general formatting go wrong, and so on. This happens even if no attempt is made to use the network - the mere presence of FSERVE appears to cause the trouble.

Years ago, my experiments with networking (using TK2) showed that

the placement of FSERVICE within a boot file was important, but why that was so I cannot recollect. Has any other reader had similar experience with corrupted printing?

A quick tip from **Roy Barber**, ex-editor of the Quanta newsletter: removing labels from 3.5-inch disks can be made easier by heating the labels with a fan heater. But disks are mainly plastic, so don't overdo the heating!

Mouse Matters

Do abbreviations drive you up the wall? Here is another you might have wondered about:

MFLOPS - Millions of Floating-point Operations Per Second. This is a measure of performance doing calculations, and is very relevant with cad/cam software.

You cannot get far without a mouse these days, but the QL variety tend to be a bit pricey. For a cheap one, call Adman Services, who are offering mouse, cable and software for a very reasonable price (see below).

Having despaired of ever coming across a good mouse, a recent encounter with a state-of-the-art laptop computer cheered me up no end. The computer is the Thinkpad, from IBM. That company has taken a lot of criticism in recent years, not least because its offerings in the way of portable computers were seen to be poor.

This new one has the best mouse I have used, and also the best colour LCD screen. As far as the user is concerned, the mouse looks remarkably like the orange eraser that comes on the end of a

pencil. It looks the same, is about the same size, and has a similar feel to it. It is located in the middle of the keyboard, and is called a "stick", but it protrudes only a small amount above the surrounding keys.

You push on it, but do not move it, since it is sensitive to pressure rather than displacement. At first sight, one thinks it will not work, but it does, and very well too. There is no apparent problem from interference with the keyboard.

Some months ago, I made a few comments on the coming of miniature hard disk drives. The size was to be about that of a standard credit card. Well, they are here. The same laptop mentioned above had a 105 MB hard drive on a plug-in card that has roughly the same area as a credit card, but is about 1 centimetre thick.

Unfortunately, I could not get it recognised by the computer! Almost certainly a software problem, not hardware.

INFORMATION

QL mouse, software and cable, £16:
Dennis Briggs
Adman Services
53 Gilpin Road
Admaston
Telford
Shropshire TF5 0BG.
Tel. 0952 255895

JOE MEN MERZ SOFTWARE

Im stillen Winkel 12 . 47169 Duisburg . Germany . Tel and Fax: 0203501274 . Mailbox: 0203-591706

NEWS - NEWS - NEWS - NEW

QD Version 6! Brandnew features. Selective automatic tab compression/expansion! You can, for example, make QD compress allspaces which fit to tabs into a tab on given file extensions, say .ASM, and get them automatically expanded when the file is loaded again! This saves, even on well-documented source files, between 30 and 40% disk space!!! It also speeds up assembly, as the file gets shorter! Another VERY useful feature is the permanent line/column display which does not slow QD down! Editor handling and line-handling speeded up. Bracket match - position cursor over a bracket { } [] "" etc. and press a key-combination, and QD finds the matching bracket! Some minor improvements, keyclick within QD addec and more.

QD Version 6 DM 125,-

Upgrade from Vers. 5 with new manual DM 26,90

Upgrade from Vers. 4 with new manual DM 49,90

QMON/JMON - Brandnew version of the well-known monitor, Debugger, Disassembler. Adopted for the pointer Environment. QMON now recognises the various stack-frames and cache handling of the different processors (6800x to 68040). A Trap level can be set, and a permanent Breakpoint has been introduced. JMON is a job-monitor with all the features of QMON, but it has got its own, moveable windows, which may be put to sleep etc. - really embedded in the Extended Environment.

New Version (German only) DM 67,-

Upgrade to V2.08 (German or English) DM 32,90

DoubleBlock - Tetris-like game for the QL! Many features, high-score-table, various levels of difficulty, differently shaped items and two-player option! Can be played with keyboard or joystick(s). **DM 42,90**

typeset93-ESC/P2 - Dedicated text87 printer drivers for all EPSO printers with ESC/P2 including the new Stylus 800. Supports the scalable fonts, special chars and block graphics for drawing borders etc. **DM 69,90**

QMenu - the Menu Extension. QMenu is an interface with pre-defined menus (e.g. multi-column file-select, simple-choice boxes, select from lists). The menus can be used from SuperBASIC, machine code and other languages. New character-select menu and info call. [V5.14] **DM 39,90**
Update with new manual DM 16,-

BlackKnight - the first mouse-driven Chess program! Yes, here it is - chess for the Pointer Environment! Moveable, runs on any display resolution! 5000 moves opening library, demo mode, setup, change sides, load and save game, hint scrollable move-history etc. 10 Levels of difficulty, giving the computer between 5 seconds to 1 hour time to think. Black Knight even thinks when its your turn. **DM 119,90**

The Lonely Joker Version 2! Now six different games in one! Another three even more complex patiences have been added to the existing three: Spine Grapaud & Four-in-a-Hand (two of them work with two packs of cards). More options (different patterns for the reverse side of the cards), high-scores, moveable window for hi-res screens etc. **DM 59,-**
Upgrade from V1 (double fun-half the price) DM 29,-

QSpread - the only Spreadsheet program for the Pointer Environment. [V1.25] **QSpread with comprehensive manual DM169,-**. Update with new manual (useful if old version is <1.20) **DM 16,-**. **QSpread Demo Version** - send 3 International Reply Coupons if ordered alone, otherwise enclose a spare disc with an order or update and it is free!

QL Hardware & Spares

FLP/RAM Level 2 device drivers for SuperQBoard **DM 56,-**
FLP/RAM Level 2 device drivers for TrumpCard **DM 56,-**
SER Mouse software driver **DM 40,-**
SER Mouse Package (mouse, adaptor & driver) **DM 87,-**
ZX8301 **DM 19,90**
ZX8302 **DM 17,90**
QL Keyboard membrane **DM 28,-** 2 membranes **DM 50,-**

QL-Emulator for ATARI

QVME - High-Res QL-Emulator for ATARI
Mega STE and ATARIT **DM 549,-**
Extended 4 QL-Emulator for all ATARI ST &
ATARI Mega ST **DM 289,-**
E-Init Emulator Software [E.39] **DM 49,-**
E-Init Update with new manual **DM 16,-**
QL-Emulator Brochure **DM 13,-**

Applications

QDOS Reference Manual **DM 89,90**
FIFI Version 2 **DM 49,90**
FIFI Update with new manual **DM 16,-**
QPTR **DM 92,-**
QSUP **DM 79,90**
QLQ **DM 69,90**
Thing & EPROM Manager **DM 61,50**
EasyPTR Part 1 **DM 89,-**
Part 2 **DM 49,-**
Part 3 **DM 49,-**
DataDesign V3 **DM 149,-**
HyperHelp for SuperBASIC **DM 49,-**
NEW: LineDesign Version 2 **DM 249,-**
NEW: QMAKE Version 2 **DM 44,90**
NEW: CueShell **DM 100,-**

Games

Diamonds **DM 35,90**
BrainSmash **DM 45,90**
Arcanoid **DM 35,90**
Firebirds **DM 35,90**
SuperGamesPack **DM 90,-**
QShang **DM 45,90**
MineField **DM 39,90**
The Oracle **DM 49,90**

Please write for detailed Catalogue!

Postage and package (Europe) DM 14,- (if total value of goods is up to DM 50,- then only DM 9,-).
(Overseas) as before, but add DM 8,- per additional item. All prices incl. 15% V.A.T. (can be deducted for orders from non-EU-countries). E&O Cheques in DM, E's, Eurocheques and Credit Cards accepted.



Instant Access - The File Compressed!

HARDWARE

CL Systems 081 459 1351
Real Time Digitizer
Computer Technik
(Jurgen Falkenburg) 010
49 7231 81058 (Germany)
Hard disk interface and
systems, tower housings.
Dilwyn Jones Computing
(DJC) 0248 354023
Process controller, power
regulator, network prover.
Miracle Systems 0904
423986. Gold Card; QXL
PC card; disk adapter;
Centron-ics adapter/lead.
Qubbesoft PD 0376
347852
Miracle Trump Card,
Expanderam, 3.5in disk
drives. Sales and support.
W N Richardson (EEC)
0494 871319. QL systems,
monitors, keyboards and
interfaces, disk drives and
printers, peripherals.
TF Services 0344 890986

Hermes IPC, Minerva rom,
keyboard membrane,
repairs, spares.

SERVICES

Adman Services (Dennis
Briggs) 0952 255895
Spares, repairs, support.
Joe Atkinson 36
Ranelagh Rd., London W5
5RJ. Roms, mdvs, spares.
Quanta: General Secretary
John Mason 0425 275894
User Group, support,
library.
Quo Vadis 0708 755759
QReview.

SOFTWARE

COWO Electronic 010 41
45 211478 (Switzerland)
QTop, Atari QL emulator,
Thor support
Deltasoft 7 Tyrell Way,
Stoke Gifford, Bristol.
Flightdeck, Image D, AMD
Airplan

Digital Precision 081
527 5493. Perfection, PC
Conqueror, Lightning, Pro
Publisher and others.
DJW Software 0256
881701 Homebanker
Dilwyn Jones Computing
(DJC) 0248 354023
Discover, Textidy, QL-PC
Fileserver, Fleet Tactical
Command, QLib, File-
master, DataDesign,
QPAC2 and other Pointer
Environment programs.
DI-Ren 081 291 3751
Fleet Tactical Command
(Dist. by Dilwyn Jones)
Ergon Developments
(Davide Santachiara) 010
39 522 70409 (Italy) ZX
Spectrum emulator, Open
World, others.
Jochen Merz Software
010 49 203501274
(Germany)
QL/Atari emulators,
QSpread, File Finder, Qptr
Toolkit and other Pointer
Environment programs,

QDesign 2, others.
Lear Data Systems
6 Southview Green,
Bentley, Ipswich, Suffolk
IP9 2DR. PCB-CAD
Liberation Software 081
546 7795 QLib Basic com-
piler (Dist. Dilwyn Jones.)
Ocean Comp. Services
061 740 9002 Professional
Poolster.
Pointer Products 0258
455117 PE programs
Progs (Van Auwera) 010
32 16 48 8952 (Belgium)
LineDesign, DataDesign,
others. (Dist. by Dilwyn
Jones; LineDesign dist. by
Software87)
Qubbesoft PD 0376
347852 QL Home Finance,
Public Domain software.
SJPD Software 0282
51854 Public Domain
software
Software 87 33 Savernake
Road, London NW3 2JU.
Text87 Plus4, Publishers'
Pack.

CLUB ACCESS

AUSTRIA

DER Computer Club.
Contact: Peter Postl, Stiegerg
5, 1150 Wien, Austria.

BELGIUM

Club Sinclair BruQsl.
Contact: Jaques Tasset,
Aarlenstraat 104, 1040
Brussels, Belgium.

QL Club. Contact: Leon
Thianche, Rue Paul Wemaere
12-14, 1150 Bruxelles,
Belgium.

FRANCE

QL Contact France. Contact:
Jean-Louis Dianoux, 22
Avenue Lenine, 93230
Romainville, France.

GERMANY

Sinclair QL User Club eV.
Contact: Franz Herrmann,
Talstrasse 21, d-W5460
Ochenfels, West Germany.
Magazine: Quasar.

GREECE

QL Athens Club. Contact:
Stathis Grigoriadis, Tarsu 6-8,
10440 Athens, Greece.

HOLLAND

Sin_QL_Air. Contact:
Secretary: Marco Holmer, J P
Coenstraat, 3531 EN Utrecht,
Netherlands. Magazine:
Quasar. Editor: Same as
Secretary. (Chairman: Cor
Biemans, Elzenstraat 5, 5461
CL Veghel, Netherlands.

ITALY

QItaly Club. Contact: Roberto
Orlandi, Via Brescia 26,
25039 Traveglianto (BS),
Italy. Tel. +39 30 6863311.
Magazine: Qitaly Magazine.
Editor: Dr Eros Forenzi, Via
Valeriana 44, 23010
Berbenno (SO), Italy. Tel. +39
342 590450.

NORWAY

**Norwegian AllSinclair
Association (NASA).**
Contact: P Monstad, NASA,
N-5580 Oelen, Norway.
Magazine: Sinclair Magazine.

SCOTLAND

Scottish QL Users Group.
Contact: Alan Pemberton, 65
Lingerwood Road,
Newtongrange, Midlothian

EH22 4QQ. Newsletter

SPAIN

Qliper. Editor: Salvador
Merino, Ctra C diz,
Cer micas Mary, 29640
Torreblanca del Sol, Spain.
Magazine: Qliper.

SWEDEN

Svenska QL-Gruppen.
Contact: Johan Boman,
Toftaasgatan 73, 42147
Vastra Frolunda, Sweden.
Magazine: QL-Bladet.

Jamten-TCL (International
QL echomail conferences)
BBS +46-63-133330. Michael
Cronsten, Radhusgatan 61E,
83137 Ostersund, Sweden.

TURKEY

QL Qlub. Contact: Bulent
Artuz, Prof. Sitesi B/1 D/5,
Etiler 80600, Istanbul, Turkey.

UK

Quanta (UK): Membership
Secretary, Bill Newell, 213
Manor Road, Benfleet, Essex
SS7 4JD. Magazine: Quanta.
Editor: Bill Fuggle, 20 Widnes
Avenue, Selly Oak,
Birmingham B29 6QE.
Quanta.

Ashstead sub-group: Derek
Stewart, 13 Beales Road,
Great Bookham, Surrey.

Bristol sub-group: Roy
Brereton, 94 Teignmouth
Road, Clevedon, Avon.

East Anglia: Geraint Jones, 1
Bridgate Court, Thetford

Essex sub-group: Dave
Walker, 22 Kempton's Mead,
Potters Bar, Herts EM6 3HZ.

London sub-group: Jeremy
Davis, 6 Elmcroft Crescent,
Harrow, Middx. HA2 6HN.

North-east: Derek Stewart,
20 Emily Street, Gateshead.

Northern Ireland: Billy
Turkington, Fairyhill,
Rostrevor, Newry, Co. Down.

Mid-Southern sub-group:
Geoff Fish, 44 Billing Avenue,
Wokingham, Berks.

**QL User Group (West
Midlands):** Mike Bedford-
White, 16 Westfield Road,
Acocks Green, Birmingham.

QL MUG (Merseyside): G
Reynolds 051 932 1484,
evenings. Meet fortnightly.

Solent sub-group: Graham
Evans, 32 Reeves Way,
Lowford, Bursledon,
Southampton. 0703 403350.

South-West sub-group:
Allan Hurford, 100 Topsham
Rd., St Leonards, Exeter.

BLACK KNIGHT

A game of Chess, and two other games.

Ian Bruntlett is busy playing his QL, and sometimes winning.

INFORMATION

Program: Black Knight

Publisher: Jochen Merz Software, Im Stillen Winkel 12, D-47169 Duisberg, Germany.

Price: DM 119.90

Black Knight is a new, pointer-driven **Chess** program for the Sinclair QL and compatibles. It has a library of 5,000 opening moves and differing levels of play ranging from a hard "5 seconds response" to an even harder "1 hour response".

As Chess is my Achilles heel, this review will be written from the point of view of a novice. The window used to display the board is a little small and the pieces lack some contrast - it is hard to clearly see a white piece on a green square. Psion chess avoided this problem by putting a contrasting outline around each piece.

Beaten!

Although Black Knight never failed to beat me, the option to "take back last move" helped me learn a little from my mistakes. It is also possible to repeatedly take back the last move, allowing a bad stretch of play to be undone.

Another facility, useful to both novice and normal player, is the facility to set up the board with a hypothetical state of play and to start play from there. This is a useful tool for playing

with chess problems or trying to overcome a particular strategy.

The "change sides" facility is a useful way to get Black Knight to suggest a move to me or, in dire circumstances, swapping sides permanently can result in Black Knight losing a game and sulking.

Pointer Style

Black Knight also has standard facilities for a pointer environment game - Quit (remove job), move window, toggle sound, go to sleep as well as start a new game. It will Save/Load games, although I would have liked an option to save the state of the board as a text file. It will also act as a normal chess board, allowing two humans to play each other, and it has a demo mode where it will play against itself.

Although Black Knight is a good game to play, I found some technical problems in my version. Ignoring the lack of CON-FIG blocks, the serious one is that it is written in C and suffers from the occasional "NULL pointer assignment". In other words it tries to overwrite the operating system rom.

At its best this triggers WatchMem's alarm and at its worst (ie when it loses a game), it crashes my QL so thoroughly the Gold Card clock gets corrupted. So be careful if you run Black Knight on an early Gold Card - make sure any important data that you are

working on (such as a review of Black Knight in Text87) is saved before you beat the program, or it may have its revenge. However, it looks as though the newest versions have fixed this bug, and can now be beaten in safety.

There are two limitations listed in the manual - pawn promotion is limited so that it is only possible to promote a pawn to a Queen or a Knight. There can only be three Queens and/or three Knights of the same colour on the board at the same time. I doubt this will be a problem for me.

This game is worth buying if you want a Chess which will run under the pointer environment.

The Oracle

INFORMATION

Program: The Oracle

Publisher: Jochen Merz Software, Im Stillen Winkel 12, D-47169 Duisberg, Germany.

Price: DM 49.90

The Oracle is a **puzzle/strategy game** for the QL. It is a pointer driven program and multi-tasks with other programmes. This is just as well as I seem to be more interested in playing the game than writing about it.

Oracle is less frantic than other "shapes and colours" games such as **Tetris** or **Brain Smasher** - this allows more thought to

be put into the game by a player. The manual states that the player should "meditate carefully over each move and you may find the secret four ways which will unlock the Oracle". This would be easier if there was a Save Game option.

Oracle has a playing board of twelve squares by eight. The computer gives the player one decorated tile at a time from a pouch filled with 72, introducing randomness and uncertainty to the game. Each tile has one of six colours and one of six shapes.

The tiles are placed on the board adjacent to other tiles and the result is either a "one way match", "two way match", "three way match" or a "four way match" yielding 1,2,4 or 8 points. A "one way match" is easy, as your tile just has to touch one side of another tile and match either its colour and/or its shape. If the tile touches two tiles, the new tile must match at least the colour of one neighbouring tile and at least the shape of the other neighbouring tile.

Hard Match

Placing a tile ranges from easily placing one related tile next to another for a "one way match" to the hard task of placing a tile in the middle of four adjacent tiles. So far I have only placed one "four way match" and that was in a game with Help switched on, showing me all the legal moves. Placing a tile

on the outer edges of the board (called the "beyond") is easy and scores no points.

There is a deeper game within Oracle that I have barely reached. When a "four way match" is first made, the message "This is the first step to solving the puzzle" appears. I would like a facility to print the board as a text file to make it easier to trade strategies and solutions.

Oracle as a program has some odd technical quirks that could be tidied up.

The least endearing feature is the way it won't save the high score table when the game is ended but that may be an incompatibility problem - Jochen Merz probably runs Oracle on an Atari, I run it on a Gold Card QL with Minerva.

Oracle as a game is recommended for anyone who likes Brain Smasher and related puzzle games.

Hints

Hints: To improve play, practise with the "always show moves" options active - novices tend to miss quite a few opportunities and this will point them out.

So far the only way I can get on the high score table is to empty the pouch. I do this by building lines of similar colours in one direction, lines of shapes in another direction.

Also, I build other lines to parallel those lines, resulting in more "two way matches".

This gets me into the high 60s, which doesn't put me into the high score table) but helps to empty the pouch which gives me 1,000 bonus points, putting me in the middle of the table.

Minefield

INFORMATION

Program: MineField
by B. Scheffold

Publisher: Jochen Merz Software, Im Stillen Winkel 12, D-47169 Duisberg, Germany.

Price: DM 39.90

Minefield is an addictive game of chance and skill that has swept the desk tops of computers all over the world. I learned to sweep mines on an Amiga but the latest (slowest?) version of Microsoft Windows has Mine Sweeper built in. Now I can play it on my QL. This version of MineField uses the pointer environment and will multi-task with other programs.

The player is presented with a rectangular field that is broken up into smaller squares by a grid. There is a set number of mines to be cleared and no immediate indication as to where the mines are located.

Another obstacle is the presence of a clock, behaving like a time bomb - clear the field too slowly, the time-bomb goes off and the game is over.

At the start of the game, the player has to pick an arbitrary point to start from and MineField either blows the player up, reveals a number in the square or handles a "0/blank" square. This is an inherent strength/weakness of any MineField-type game.

Blown Up

The weakness is that a player can be blown up within the first few moves without making a single mistake. The strength is that after the first few moves of a game, you may have picked a "0/blank"

spot and had a large portion of the field revealed to you.

An empty square is marked by moving the pointer over the square and either pressing the left mouse button or Space. If the player makes a mistake and declares a mined area to be free, there is an explosion and the game is over - in this game the player only has one "life".

If the empty square really is empty then MineField displays a number in that square which shows how many mines are next to that square.

A square is marked as mined by moving the pointer over the square and either pressing the right mouse button or Enter. After plenty of accidents - pressing the wrong mouse button, I remember the correct button with the phrase "A mine has been LEFT here".

No Mines

If you uncover a square that has no mines touching it - horizontally, vertically or diagonally, then its number would be 0. However MineField treats such squares differently. It displays a blank square rather than a 0 square. It then uncovers any neighbouring "0"/blank squares, and any similar neighbours of those neighbours.

The result is that stumbling onto a blank patch starts the QL clicking away, clearing a chunk of the mine field automatically. I can never get used to this, it always fools me into thinking I've stepped on a mine accidentally - then I see a portion of the field being cleared automatically and I realise what is going on.

Once a couple of squares have been cleared, it is usually possi-

ble to deduce those neighbouring squares are empty and those which have mines in. The player keeps on marking squares as clear or mined until the whole field is clear.

Real Guess!

Occasionally, an "impossible to deduce" situation arises where the player just has to make an educated guess as to where the next clear square is.

Although the game is sound there are some technical quibbles. The command to Execute is unnecessarily intricate, preventing it from being a simple program to pop-up. Also, on my system it refuses to save the high score table, yet no error message is displayed.

However, to conclude, this is a competent implementation of MineField.

All three games reviewed had rough edges when it came to integrating them into an existing set-up.

The games were on disks ready to be booted from but that does not help the experienced user with hard disk - or, as in my case, ED drives.

Each game should have been configurable with CONFIG as well so that a hard disk user could be working deep in a project and still be able to execute the game without having to change data defaults.

Adventure '93

Bruce Nicholls re-enters the world of QL adventure in the form of SQLUGware.

Have you ever wanted to visit the New World aboard a galleon, find the ten hidden treasures of the fabled caves and challenge the mighty dragon baud, meet a fluffy bunny rabbit from Disneyland, teleport to strange worlds and visit alien races? Now's your chance with the release of the Adventure93 package from SQLUG (the Scottish QL Users Group).

Adventure93 is a set of five QL adventures written by Alan Pemberton, probably the most prolific adventure writer for the QL. The five games, written between 1986 and 1990, constitute the majority of his QL adventures and have been released previously as either public domain or commercial programs. The adventures are all here re-issued as SQLUGware.

SQLUGware is a species of public domain software designed to increase the awareness of the Scottish QL User Group. The packages may be freely copied and passed on without any restrictions other than that the packages must be intact and contain the documentation explaining SQLUGware. If you make only light use of the program you do not have to register. If you do register, for a modest fee of £7, £9 for overseas, (cheques made payable to Scottish QL Users Group) you receive certain benefits.

The first is a Helpline service, a must

if you get stuck on an adventure and you feel like throwing your QL out of the window. The second is printed manuals for the ex-commercial adventures. The last is that if substantial improvements are made to any of the adventures you will be sent the upgrades free of charge. The adventures are on two 3.5-in 720K disks, so a disk drive is necessary, and an expanded memory QL is required if you wish to run all the adventures.

The first, **Adventure Playtime**, was originally on QL World's Microdrive Exchange in 1987. The SuperBasic listing has now been compiled with Q_Liberator and made into a fully multitasking adventure (all the adventures are capable of multitasking). It is text-only.

Strange Lands

The setting is a strange land. Most of the inhabitants have problems, so you as the adventurer are given the task of solving them and bringing peace to the land. In your travels you will meet a librarian who is looking for that elusive last book, a prisoner who wants to

escape and a foreign tourist who is having some difficulty finding the route.

The problems usually involves finding or using an object which can be located somewhere in the adventure, although you may not find the objects in the same sequence as the problems. As an example the foreign tourist could obviously do with a foreign map, but where do you find the map? Instructions are given to the adventure in the form of brief phrases describing what actions you would like to perform such as "GO THROUGH PINK DOOR". The adventure can also handle multiple actions such as "EAT PIZZA AND OPEN PINK DOOR AND GO THROUGH PINK DOOR", which is an action you can perform in the first location. An option to SAVE and LOAD your current position to a device, or ram disk, is provided. This also prevents any unforeseen problems cropping up which then place you back at the beginning of the adventure, providing you save regularly. If you find yourself completely stuck on one of the problems a DECODE command is available to translate one of the many hints such as "ivsgly g'mlw", in the Quill instruction doc file.

Introduction

Adventure Playtime is an ideal introductory adventure for anyone who has never become ensorbed in adventuring before. The problems encountered can easily be overcome, the adventure is very user-friendly and is often very amusing.

From the Tower of Valagon was the next text adventure to be released. This adventure takes place in a fantasy land full of Orcs, Giants and Dwarfs. Your quest is to rid the land of an ex-court Mystic named Valagon who was angry at the King not wanting his services any more. Valagon, in his tower on Mount Perethil, conjured up a vast army of Orcs to take the city of Hirin, where the King resides, to extract revenge. The Oracles foresaw the arrival of a handsome prince to restore peace, but unfortunately he

A cultural screen from the Adventure of the Tower of Valagon.

Up a tree

You go up.
You are hiding up a tree.
Possible exits are down to a dead end.
You see :- nothing

'Where diddy go?', shouts Bognot, confused, 'O! might fancied a bitta slygin.'

'Never mind,' Gasbag replies, 'Let'sack this ol' tree tubbits.' And he gets laid in about it with an axe.

Suddenly the tree comes to life, grabbing Gasbag with myriad branches and squeezing...

Bognot flees in terror as the ent tightens its hold, squeezing Gasbag's entrails from every available orifice, like a tube of toothpaste.

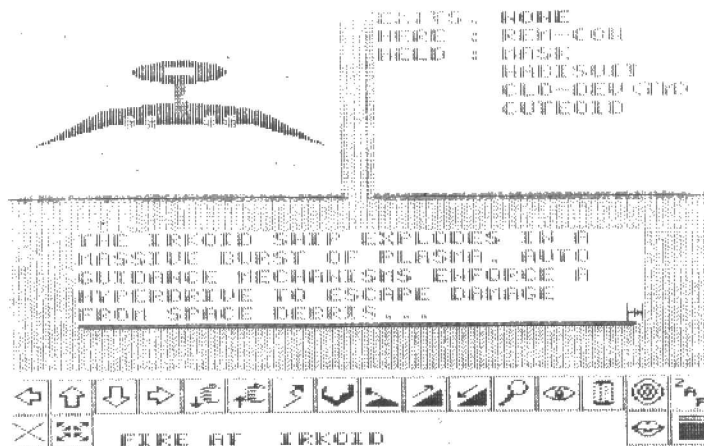
was scared and ran away, leaving you instead.

This adventure works in the same way as in Adventure Playtime. The interaction between the characters you meet in the adventure has been increased and you need to ask them to perform some actions on your behalf. This is done by simply typing the correct verb such as "ASK ORACLE TO READ ORB" or "TELL EDMUND TO KILL DWARF". The adventure descriptions are vivid and convey an atmospheric setting throughout the adventure. From the Tower of Valagon is moderately difficult, and copious use of the SAVE option is a must, as it is easy to be killed off.

Starplod is altogether different. The setting is deep in space where you are in charge of a Gal-Fed Exploratory Space-Craft in orbit around an immense Space-Base. The Space-Base is running out of Moronium and it is up to you to find the next shipment. This adventure works differently. Instead of typing commands, you use a row of graphical icons. The range of icons includes take, movement commands, zap (fire), examine, utilise, and so on. Once you have selected an icon you can then select any option at that icon, like choosing an object.

The screen is split into four areas. The top left shows a small diagram of your current position - the adventure runs in Mode8 and uses the QL's limited colours to great effect. The top right text box shows your possible exits, your position and items that you are currently carrying. The middle of the screen is a description box detailing your actions and the location text and the bottom of the screen is the icons.

The adventure is ideally for a beginner as the icon-controlled adventure



Explosion time in Starplod.

is less complex than a text adventure. The puzzles throughout the adventure are not very complex and the graphical interface is certainly a welcome change from text adventures normal on the QL.

The last adventure on disk 1 is **Ye Classical-Type Adventure**. This was written using Gilsoft's Quill Adventure Writer, originally released on the Spectrum computer. The adventure is pure text and can only accept two-word commands, a limitation with the Quill Adventure Writer. It is called Ye Classical-Type Adventure as it tries, and succeeds, to re-create the original atmosphere the first adventure, *Colossal Cave*, or Adventures created in the mid-70s. This is not a copy of the the original adventure but a light hearted homage. The setting is a fantasy land where you have to challenge the mighty dragon Baud. Before this can be done

you must find and bring back the ten hidden treasures of the Fabled Caves to a dwarf named Sporrin. The adventure takes place mostly in a large labyrinth of tunnels know as the Fabled Caves and includes many features found in the original Colossal Cave, such as secret words which teleport you from room to room.

The adventure is moderately difficult and the Caves themselves are very large, so you will have to spend some time preparing your next move. There are hidden jokes within the adventure relating to the original Colossal Cave, although the adventure can certainly be enjoyed without them.

The second disk contains the last and most ambitious adventure by Alan Pemberton. The adventure combines text and graphics, with most of the graphics produced by Francis O'Brien. The adventure has about 22 half-screen graphics show-

ing some of the scenes in the adventure. The graphics are superb and show what can be achieved on the limited QL screen display.

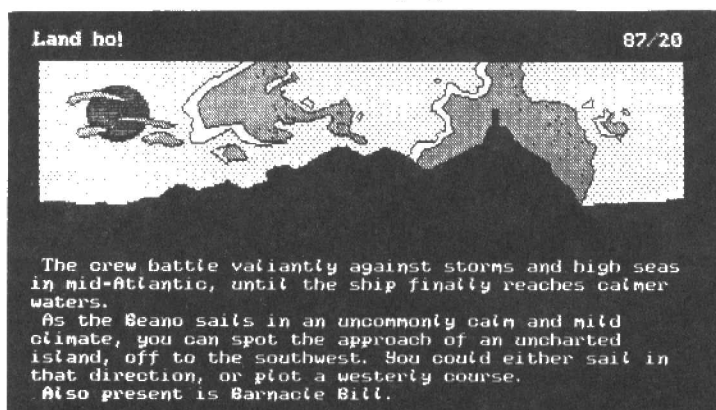
To communicate an adventure, you enter short phrases in English. For example, "GIVE RUM TO THE CREW" will keep them happy for the long voyage ahead of them. An option to send all the text output to a printer is also included together with the usual SAVE and RE-STORE commands.

You take on the role of JD Hogwash, a lowly deck-hand who by a stroke of luck, and a lot of bragging, has been made Captain of **HMS Beano** by the Queen. Your orders as Captain is to "give the Spaniards what-for, and come back with the gold". The first task is to muster a crew, and as is common in these times working on a ship is not very popular, so a little pressganging is required before you can set sail for the New World. Your voyages take you to the Sargasso sea, a local settlement, a disco-bar called Sordido and finally to a volcano named Mount Poppakettleon in South America.

This adventure is one of the best for the QL. The graphics and text are of the very best quality and compliment one another. There are a large number of locations, and the puzzles are moderately difficult. As with all Alan Pemberton's adventures there is humour, sometimes subtle, sometimes blatant, which adds to the fun.

For more information on SQLUG write to **Alan Pemberton, SQLUG Secretary, 65 Lingerwood Road, Newton-grange, Dalkeith, Midlothian EH22 4QQ**. The Adventure93 disks can be obtained from Quanta and any PD supplier such as Cubbesoft or SJP.D.

A dramatic screen from Voyage of the Beano.



DIY Toolkit

Simon Goodwin adds fast PACKBITS compression to the DIY Toolkit repertoire.

This DIY Toolkit project implements one of the most common schemes used to compress repeated bytes in a data stream. The COMPRESS function generates a packed copy of an area of memory, non-destructively. Its counterpart is EXPAND, which incorporates error-checking for corrupt or incomplete data. Both are encoded in less than 400 bytes of SuperBasic extension routines.

Data Packing

PACKBITS is not the most efficient way to pack all data - the optimal choice invariably depends on the exact data being processed - but it is probably the most ubiquitous, used in

MacPaint and Apple PICT graphics files, Amiga IFF ILBMs (Interchange File Format Interleaved Bit Map), Aldus/Microsoft TIFF (Tag Image File Format), Adobe Postscript and Hewlett Packard's PCL (Printer Control Language).

The term "Packbits" is just as widely used, but it is a misnomer, because the scheme packs groups of bytes, not individual bits. Packbits is one of a class of compression systems known as 'Run Length Encoding'. It works by encoding the length of groups or 'runs' of matching bytes.

Run Length Encoding schemes are so common that it's worth knowing about them, even if your drives are never more than half full and you never use a printer, modem, or data from another system. Compression is paradoxically an enormous topic; Packbits is a perfect introduction to its potential, and its pitfalls.

Byte Stream

Packbits compression generates a stream of bytes, with control bytes interspersed between literal data values. The compression comes because groups of from two to 128 identical bytes are encoded as a count, in the control byte, followed by a single byte of data.

At best, this gives a 64:1 compression ratio; at worst, on a reasonably sized file, it expands the data by a small factor, 129:128. If you encode less than 128 bytes, the result can be much bigger than the original, if added control bytes outweigh the literal data. In such cases it is best to mark the file as unpacked and skip the compression or expansion process.

If consecutive bytes do not match, Packbits collects them into a

* QL World DIY Toolkit 'PACKBITS' data compression extensions
* Copyright 1994 Simon N Goodwin, version 1.4, 15th April 1994

```
start  lea.l   define,a1      Point at extension table
       movea.w $110.w,a2     Read BP.INIT vector
       jmp    (a2)           Link extensions to SuperBASIC
```

```
*
* new_bytes = COMPRESS(old_bytes,source TO target)
```

```
squash moveq   #1,d7          Flag for COMPRESS
       bra.s   getints
```

```
*
bad_par moveq   #-15,d0       Bad parameter error code
give_up rts      Return error code in D0
```

```
*
* new_bytes = EXPAND(old_bytes,source TO target)
```

```
* SOURCE & TARGET are full 32 bit byte addresses, unchecked.
* BYTES is treated as a 32 bit unsigned value (i.e. 4 Gb+).
* Reports END OF FILE unless BYTES matches the end of a pack.
```

```
expand moveq    #0,d7         Flag for EXPAND
getints movea.w $118.w,a2     Vector to get long integers
       jsr     (a2)
       bne.s   give_up
       subq.w  #3,d3          Check number of parameters
       bne.s   bad_par
       move.l  0(a1,a6.l),d2   Byte count
       movea.l 8(a1,a6.l),a2   Target Address, anywhere
       move.l  a2,d6          Save it for later
       movea.l 4(a1,a6.l),a4   Source address, unchecked
       tst.l   d7
       beq     inflate
```

```
*
* PACKBITS compression routine
```

```
squeeze move.l  d2,d3         Copy length
       beq     result        Do nothing, quickly
       add.l   a4,d3          D3 points past last byte
       move.l  a4,d5          Remember where we've got to
       move.b  (a4)+,d2       Pick up first data byte
       cmp.b   (a4),d2        Do we start with a group?
       beq.s   next1
       clr.b   (a2)+
       move.b  d2,(a2)+      Start with an lone byte
                               Bodge to include first byte
```

```
*
next1  cmp.l    a4,d3         Have we finished yet?
       beq.s   group_n       Output the last group
       move.b  (a4)+,d1       Check in the next byte
       cmp.b   d1,d2         A match, perchance?
       beq.s   next1         Keep looking good
```

```
* Bytes from (D5) to -2(A4) match, all D2; -1(A4) is D1
```

```
*
       lea.l   -2(a4),a0      Point at last match
       exg     a0,d5          Get biggest into D5
       sub.l   a0,d5          D5 := number of matches-1
       beq.s   group0
```

```

* Compress the run of matching bytes into packed groups
*
do_lots cmp.l   #128,d5           Can we do it in one?
      bcs.s    in_one           D5 is 1..127 for 2..128 bytes
      move.b   #-127,(a2)+       Full group size
      move.b   d2,(a2)+         Pattern
      subi.l   #128,d5
      bne.s    do_lots

*
* One byte is left over, treat it specially as a literal
*
odd_one subq.l   #1,a4           Move back over the odd one
      bra.s    group1

*
* Pack the last group of D5+1 bytes into one byte pair
*
in_one  neg.l    d5
      move.b    d5,(a2)+
      move.b    d2,(a2)+

*
* D1 is first mismatch and D3 points past the last byte encoded
*
group0  cmp.l    a4,d3           Have we finished yet?
      beq.s     last1
group1  move.l    a4,d5
      subq.l    #1,d5
      move.b    (a4)+,d2        Is this a new run of D1 bytes?
      cmp.b     d1,d2
      beq.s     next1          Yes, there's no literal group

*
* D1 (D5) & D2 1(D5) differ from the previous run, up to -1(D5)
*
scan    cmp.l    a4,d3           Have we reached the end?
      beq.s     last_n
      move.b    d2,d1           Slide patterns along one byte
      move.b    (a4)+,d2
      cmp.b     d1,d2           Is this still a literal group?
      bne.s     scan

*
* D1 & D2, last two bytes scanned, match; (D5)..-2(A4) don't
*
      lea.l     -2(a4),a0        The literals stopped here
      suba.l    d5,a0
      exg       d5,a0           A0 -> First, D5 is >0 count
      bsr.s     litpack
      move.l    a0,d5           Remember where we got to
      bra.s     next1

*
* Process any last group left at the end of the input data
*
group_n  exg      a4,d5          D5 -> Last, A4 -> First
      sub.l     a4,d5          D5 := run length, >0
lastset  cmp.l     #128,d5       D5 <= 128 if C or Z flagged
      bls.s     nearly
      move.b    #-127,(a2)+     128 of these, please
      move.b    d2,(a2)+
      subi.l    #128,d5
      bra.s     lastset

*

```

group of up to 128 'literal' bytes, prefixing the group accordingly with another control code.

Convention dictates that the control byte is -127 to -1 if 128 to two literal bytes follow, and 0 to 127 for between 1 and 128 copies of a repeated byte. Notice that the count used is one more than the absolute value of the control byte. The only way to encode a single literal byte is as itself with zero copies, coded as a zero followed by the literal byte value.

The remaining byte value (-)128 is a special case. This control byte is skipped and the following byte is

taken as a new control byte. These can be useful as padding while shuffling data around, although it rather defies the principle of compression to write them to a file!

Signed Bytes

You may be more familiar with byte values from 0 to 255, rather than 128 to 127. The values 0 to 127 are stored the same, either way; the rest depend on your interpretation of the most significant or 'sign' bit. SuperBasic treats bytes as unsigned, so PEEK returns -127 to -1 for signed

bytes -127 to 1. POKE accepts both signed or unsigned values -128 to 255, and stores them correctly. To prove it, enter this line:

```
CLS : FOR I=-128 TO 0 : POKE
2^17,I : PRINT !!!!PEEK(2^17)!
```

It's simple to express the PACKBITS scheme in words, once you've got to grips with the difference between signed and unsigned bytes. It's almost as easy to write an expansion routine, but the code to compress data is surprisingly subtle.

Development

Listing One is my fourth attempt at a Packbits compression routine. I started in SuperBasic, struggling with strings starting at one and PEEK offsets at zero, then got hopelessly confused between bytes and long words in Pascal.

The third try ended up as a complete 68000 program, but after three evenings adding SUBQs here and there it still didn't always give the right answers, so I scrapped it, and wrote the version presented here, from scratch. Version 4 is a bit longer, at almost 400 bytes, but it works.

The main change was that I started by trying to keep the positive or negative control count in a register as I went along, copying bytes across as I scanned them. This is complicated by loads of special cases; you have to look one byte ahead to know if you're in a group yet, so you can't transfer bytes until some time after they've been scanned.

Control counts may be positive or negative, and are one less than the bytes spanned. Individual literal bytes between patterns need special treatment, and groups must be closed off at their 128 byte limit. And what about a pattern of 129 repeated bytes? The odd one should be in the next literal group, not in a two-byte group of its own.

Revisionism

The version listed here is longer and simpler because it uses the program counter to keep track of the type of group being processed. This results in

some duplication but keeps the complexity down. For instance the loop NEXT1 corresponds to the SCAN loop later, except that one hopes for matches and the other expects mis-matches.

They do not explicitly count the bytes as they go along, but later this can be computed from the distance the source pointer A4 has moved in the loop, then adjusted to suit the entry conditions.

At the start of each new scan D5 points at the next data byte, addressed by A4, and at the end it is converted into a simple positive count of the number of bytes in the group, before the control byte is generated.

The D5 count is not limited to 128; in fact it works for up to four gigabytes, a full 32 bit range. The loops DO_LOTS and LITPACK spit out records of 128 incoming bytes until there's a smaller record left over, for IN_ONE or OUT_ONE to deal with.

If a long literal block is found, MOVE128 moves four bytes at a time to minimise the overhead of the DBRA; it's not worth using MOVE.L unless you have a 68020 or above, because on earlier processors long words must be at even addresses, and about three quarters of the time this would not be the case.

Addresses

My revised compressor does not count down the number of bytes remaining, but compares the address of the next, in A4, with the address of the byte after the end of the data, in D3. This is less elegant than a DBRA loop but easier to follow, and it even works with fancy lengths like 0, 1 and 2.

The last group from the input is a special case, so it is handled by complementary routines for matching and non-matching data, labelled GROUP_N and LAST_N respectively. Again the program counter keeps the group and literal routines distinct.

Both return via COUNT; notice how LAST_N rather unconventionally pushes the address of COUNT, then 'falls into' the following LITPACK subroutine. Some programmers and compilers love this sort of

```

nearly  subq.l  #1,d5          Adjust copy count to 0..127
        neg.l   d5             Make negative control code
        move.b  d5,(a2)+
        move.b  d2,(a2)+
        bra.s   count

*
* Process one or more literal bytes at the end of the input
*
lastl    clr.b   (a2)+          One lonely literal left over
        move.b  d1,(a2)+
        bra.s   count

*
last_n   movea.l d5,a0          Where did we reach, earlier?
        suba.l  a0,a4          Where are we now?
        move.l  a4,d5          Work out count of bytes left
        pea.l   count          Return to COUNT from LITPACK

*
* Subroutine to copy any number of literals to output buffer
*
litpack  cmp.l   #128,d5        Will it fit in one group?
        bls.s   out_one

*
* Copy a 128 byte group of literals, relatively quickly
*
        move.b  #127,(a2)+
        moveq   #31,d1          DBRA count, (128 DIV 4) - 1
move128  move.b  (a0)+,(a2)+
        move.b  (a0)+,(a2)+      Move several bytes each time
        move.b  (a0)+,(a2)+
        move.b  (a0)+,(a2)+
        dbra    d1,move128      Keep on moving
        sub.l   #128,d5
        bra.s   litpack

*
out_one  subq.l  #1,d5          D5 := 0 to 127
        move.b  d5,(a2)+
move_n   move.b  (a0)+,(a2)+      Copy the remaining literals
        dbra    d5,move_n
        rts

*
* PACKBITS expansion; literal sequence copier
*
literal  move.b  (a4)+,(a2)+      Copy a literal byte
        subq.l  #1,d2          One less to do
        beq.s   run_out
        subq.b  #1,d0          Count down literals
        bpl.s   literal        Self-limiting at 128

*
* PACKBITS expansion routine; D2 is 32 bit length, >1
*
inflate  subq.l  #1,d2          We need >1 byte left
        beq.s   abrupt

*
bloater  move.b  (a4)+,d0        Get a control byte
        bpl.s   literal
        neg.b   d0              Convert negative count
        bmi.s   bloater        Skip a 'filler' 128 byte
        ext.w   d0
        move.b  (a4)+,d1        Get the byte to repeat

```

deferred branch, and it has its uses, but this is the first time I've done it in DIY Toolkit.

The EXPAND routine is much simpler. It starts at INFLATE, which expects at least two bytes - you must have some data as well as the control, or you get an 'End of file' report. The same is true if the data does not run out at the end of a group, where a new control would otherwise come. This usually indicates an incomplete file, or corruption in the data.

The line labelled BLOATER gets a new control byte, ignoring 128s, which stay negative after NEG.B,

and sifting the rest to the unpacking and transfer loops, COPIER and LITERAL.

RESULT converts the distance traversed by the data pointer into a floating point value in the usual way - only Minerva boasts a vector to do this and returns it to SuperBASIC.

The Functions

You are expected to find it interesting, but you don't need to know how Packbits works to use it. It's not that bad.

The SuperBasic extensions

```

repeat  move.b  d1,(a2)+      Store one copy
        dbra    d0,repeat     Tight loop suits 68010+
        subq.l  #1,d2         Any more?
        bne.s   inflate
        bra.s   count

*
abrupt  moveq    #-10,d0      Unexpected END OF FILE
        rts

*
run_out tst.b    d0           Check the control count
        bne.s   abrupt       There should be none left
count   move.l   a2,d3        Point at the end
*
* Return (D3 - D6.L) to SuperBASIC as a floating-point value
*
result  sub.l    d6,d3        Where did we start?
        move.w   d3,d4        D4 will be the exponent
        move.l   d3,d5        D5 will be the mantissa
        beq.s    normal       Zero is a trivial case
        move.w   #2079,d4     First guess at the exponent
        add.l    d3,d3        Already normalised?
        bvs.s    normal       If so, no need for shift work
        subq.w   #1,d4        Otherwise halve exponent weight
        move.l   d3,d5        Double mantissa to match
        moveq    #16,d0       Try a 16 bit shift first

*
shifter move.l   d5,d1        Take copy of mantissa
        asl.l    d0,d1        Shift mantissa D0 places
        bvs.s    too_far     Overflow; must shift less
        sub.w    d0,d4        Correct exponent for shift
        move.l   d1,d5        New mantissa is more normal
too_far asr.w    #1,d0        Halve shift distance
        bne.s    shifter     Try shifts of 8, 4, 2 and 1

*
normal  addq.l   #6,a1        Free 6 of the 12 stack bytes
        move.l   a1,$58(a6)   Set BV.RIP for 6 byte result
        move.l   d5,2(a1,a6.l) Stack mantissa
        move.w   d4,0(a1,a6.l) Stack exponent
        moveq    #2,d4        Floating point result code
        moveq    #0,d0
        rts

*
define  dc.w     0            No procedures
        dc.w     0
        dc.w     2            Two functions
        dc.w     squash-*
        dc.b     8,'COMPRESS'
        even
        dc.w     expand-*
        dc.b     6,'EXPAND'
        even
        dc.w     0

*
        end

```

EXPAND and COMPRESS take identical parameters: the current number of bytes, the place in memory where the data is stored, and the place you want the results, packed or unpacked. The result is the number of new bytes.

Take care to allocate plenty of room in case the 'packing' makes the data longer. At worst, a 32K screen could expand to 33024 bytes. This example stores a screen as a compressed file, unless there's no point compressing it.

Compressed files are saved as tasks with a nonsensical one-byte dataspace. Don't try to EXEC these! You could alternatively distinguish

compressed files by a data prefix or file name suffix.

```

MAX= 128*256 :REMark 256 lines
VDU= 2^17 :REMark Qdos Screen 0
RAM= RESERVE( MAX*129/128)
IF RAM<=0: PRINT "No RAM!":
STOP
SIZE= COMPRESS (MAX,VDU TO
RAM)
IF SIZE>MAX
SBYTES FILE$,VDU,MAX
ELSE
SEXEC FILE$,RAM,SIZE,1
END IF
DISCARD RAM

```

RESERVE and DISCARD are from DIY Toolkit Volume H, and correspond to ALCHP and RECHP in other toolkits. This is the corresponding program to put FILE\$ back on the screen:

```

VDU= 2^17 :REMark Qdos
Screen 0
FLAG= FDAT(FILE$)
IF FLAG<>1
LBYTES FILE$,VDU
ELSE
SIZE= FLEN(FILE$)
RAM= RESERVE(SIZE)
IF RAM<SIZE:PRINT "No
RAM!":STOP
SIZE2= EXPAND (SIZE,RAM
TO VDU)
DISCARD RAM
END IF

```

The FDAT and FTYPE functions are in Toolkit 2 and Mark Swift's PD Toolkit. SIZE2 should be the original size of the image, 32K for 256 lines, 8K for a quarter-screen, and so on. Don't put more than 32K into screen memory, or Qdos will crash!

You can compress or expand any type of data once you've loaded it into memory with LBYTES, which is usually much faster than INPUT. Use SBYTES to save the results, if they merit saving.

Packbits is usually pretty good on printer files with lots of spaces or blank lines, like columnar text or spreadsheets, Psion data blocks like paragraph tables and Archive indices, black and white Mode4 images, W_SAVE windows, and (only) black and yellow in Mode8.

Escher Tests!

I tried it on some big files of mono graphics by MC Escher which I have recently converted to the Qdos Public Domain. The 50K 'Fishballs' file came down to 19,743 bytes, while the 32K 'Horsemen' screen weighed in at a disappointing 27,030. Birds2 has large white areas, which brought it down from 32K to 10,106 bytes.

Turning to programs, Packbits was unable to make the C68 compiled Multi-DiscOver utility smaller, but did manage to shave Turbo's QLIPBOARD_

TASK from 30,206 bytes to 27,759. The indentation in BASIC_PAS, source for a little Basic interpreter I wrote in Pascal a decade ago, helped it shrink from 19,330 bytes to 10,650.

The biggest 'files' I have are over 500K, Public Domain disk images used by the Success CP/M emulator. My Gold Card packed the 'Files2' utilities compiled by Michael L Jackson from 532,992 bytes to 252,638 in about two seconds.

Colour screens do not suit Packbits at all well, because most QL colours spread their values between adjacent bytes in display memory. These need special treatment with other DIY extensions.

Horrible

Two horrible cases are all-red and all-green screens, which alternate bytes 0 and 255 in memory. The pattern is obvious to us, but not to Packbits, which only looks one byte ahead and 'compresses' this screen to a bulging 33024 bytes.

You're best advised to sift the red and green bytes with W_CRUNCH, from **DIY Toolkit Volume W** (QLW July 1992) and pack them separately. Thus split, Packbits can cope, and block colour and stippled screens pack down to 1K bytes or less.

These extensions are non-destructive, in that you keep the original data and get a new copy after conversion. This takes more memory than conversion in place, but it is safer and generally faster. These days most people have much more memory than the biggest files that they would be likely to compress.

The Listings

Listing Two is the usual SuperBasic loader with DATA corresponding to the Packbits code. Enter and run the program, which will generate a code file; you choose the name; something like FLP1_PACKBITS_CODE.

Before you can use COMPRESS and EXPAND, you need to link that code to SuperBasic. The easiest way is with toolkit commands LRESPR or LINKUP, but if these are lacking you can do it in three steps, like so:

```
K=RESPR(396)
LBYTES FLP1_PACKBITS_CODE,K
CALL K
```

Save Nails

The source, object code and documentation for this DIY Toolkit project has been added to **DIY Toolkit Volume K**, along with the Hewlett Packard PCL printer drivers. This makes sense because HPDUMP is much enhanced if you use PACKBITS compression before squirting bytes through the slow QL serial ports. PCL printers like my DeskJet can print much faster than the

```
100 REMark Sinclair QL World HEX LOADER v 3c
110 REMark by Marcus Jeffery & Simon N Goodwin
120 :
130 CLS: RESTORE : READ space: start=RESPR(space)
140 PRINT "Loading Hex...": HEX_LOAD start
150 INPUT "Save to file...";f$
160 SBYTES f$,start,byte : STOP
170 :
180 DEFine FuNction DECIMAL(x)
190 RETurn CODE(h$(x))-48-7*(h$(x)>"9")
200 END DEFine DECIMAL
210 :
220 DEFine PROCedure HEX_LOAD(start)
230 byte = 0 : checksum = 0
240 REPeat load_hex_digits
250   READ h$
260   IF h$="*" : EXIT load_hex_digits
270   IF LEN(h$) MOD 2
280     PRINT"Odd hex digit count in: ";h$ : STOP
300   END IF
310   FOR b = 1 TO LEN(h$) STEP 2
320     hb = DECIMAL(b) : lb = DECIMAL(b+1)
330     IF hb<0 OR hb>15 OR lb<0 OR lb>15
340       PRINT "Bad hex digit in: ";h$ : STOP
350     END IF
360     POKE start+byte,16*hb+lb
370     checksum = checksum + 16*hb + lb
380     byte = byte + 1
390   END FOR b
400 END REPeat load_hex_digits
420 READ check : IF check <> checksum
430   PRINT "Checksum incorrect. Recheck data.":STOP
440 END IF
450 PRINT "Checksum correct, data entered at: ";start
460 END DEFine HEX_LOAD
470 :
580 REMark Space requirements for the machine code
590 DATA 396
600 :
610 DATA "43FA016C34780110","4ED27E01600670F1"
620 DATA "4E757E0034780118","4E9266F4574366EE"
630 DATA "2431E8002471E808","2C0A2871E8044A87"
640 DATA "670000DE26026700","00FED68C2A0C141C"
650 DATA "B4146704421A14C2","B68C6758121CB401"
660 DATA "67F641ECFFFECEB88","9A886720BABC0000"
670 DATA "0080651214FC0081","14C2048500000080"
680 DATA "66EA538C600A4485","14C514C2B68C6748"
690 DATA "2A0C5385141CB401","67BEB68C67401202"
700 DATA "141CB40166F441EC","FFFE91C5CB886138"
710 DATA "2A0860A4CB8C9A8C","BABC00000080631A"
720 DATA "14FC008114C20485","0000008060EA5385"
730 DATA "448514C514C2606C","421A14C160662045"
740 DATA "99C82A0C487A005E","BABC00000080631A"
750 DATA "14FC007F721F14D8","14D814D814D851C9"
760 DATA "FFF6048500000080","60DE538514C514D8"
770 DATA "51CDFFFC4E7514DC","5382672453006AF6"
780 DATA "53826718101C6AEE","44006BF84880121C"
790 DATA "14C151C8FFFC5382","66E6600870F64E75"
800 DATA "4A0066F8260A9686","38032A03671C383C"
810 DATA "081FD68369145344","2A0370102205E1A1"
820 DATA "690498402A01E240","66F25C892D490058"
830 DATA "2385E8023384E800","780270004E750000"
840 DATA "00000002FE960843","4F4D505245535300"
850 DATA "FE9206455850414E","44000000","*",37518
```

QL can despatch un-packed serial data, and have Packbits expansion built-in.

Volume Y is one of 24 volumes of DIY Toolkit available on disks or microdrive cartridges from Dr. Bill Fuggle. These cost £3 Sterling each, payable to DIY Toolkit, delivered anywhere in the world. You get full documentation and examples on

the disk or cartridge, and honorary DIY librarian Bill adds neat laser-printed documentation for each Volume if you order more than one at a time.

This is the way I keep DIY Toolkit projects up to date, so they do not become frozen after each article is printed. I frequently add files as new hardware and software is released, such as

HD and ED drives, Minerva and QL emulators.

If interest and space permit, I'll explain how to patch PACKBITS routines into other machine-code programs. If you can't see how to do it yourself, and want to get cracking straight away, you can use COMPRESS and EXPAND to convert data in SuperBasic, with LBYTES and SBYTES for fast loading. MOVE MEMORY, PEEK\$ and POKE\$ will come in handy if you want to use serial devices or mix program-generated data like escape sequences into the packed stuff.

The Pipeline

These days I only get room for one slim article each month, and this project has consumed a few evenings more than expected, so

the promised installment of SuperBasic Browser has been held over.

I don't get as many letters about DIY Toolkit as I used to, and I'm not sure whether this indicates satisfaction or exhaustion. Meanwhile I'm squirming along in my own Byzantine way, finding it harder to squeeze simple examples into SuperBasic and Toolkit tutorials.

The Browser will return, and I can feel another bout of mouse-trapping coming on, mainly for the benefit of users with Qpac, unreliable serial ports or wonky Microsoft mice. Please write to me, care of QL World, if you wish to guide the course of future SuperBasic in Action and DIY Toolkit columns.

Telephone: 0753-886886
Fax: 0753-887149

(EEC) W.N. Richardson & Co.

18/21, Minbourne House,
Chalfont St Giles, Bucks HP8 4UE

SINCLAIR QL PRICE LIST

DEC '93

All Prices Include 17.5% VAT

ASK FOR DETAILS OF ECONOMY RANGE OF F.D.D. UP TO 4MB AND H.D.D. UP TO 44MB.

IS COMPLETE QL Computer, PSU, T.V. Lead, FSI0N V2.15 Software (Word Processor, Spreadsheet, Database & Business Graphics), Handbook for QL, Programs, & SuperBasic. JS £120
(A FEW LEFT) Free one year membership to QUANTA, the independent QL User Group with over 400 free library programs, Newsletters & HELP. 6 MONTHS WARRANTY. WITH 1M ROM £100.00

PART EXCHANGE £30 OFF ABOVE. Send in old QL (Unit only, any condition) JS FCM £40 JM £70.00

BACKUP QL QL & PSU only. JS £20 DM62 (Part exchange allowance £15 if required)

Accessories * NOTE: EXTERNAL (SER2) 3 BUTTON MOUSE AND SOFTWARE WITH EXTRA FUNCTIONS. NOW HERMES COMPATIBLE *

PC KEYBOARD INTERFACE, for INTERNAL FITTING, with lead to 102 KEY KEYBOARD

PC KEYBOARD, UK version, 102 Key (AT) → REDUCED PRICES → £25.00 £30.00

PC KEYBOARD INTERFACE and KEYBOARD → £95.00 £99.00

CASE and LEAD for EXTERNAL FITTING of Keyboard Interface for simpler assembly

JOYSTICK with QL Lead (no interface required) £10.00

* QL MOUSE, 3 Button, Software controlled, externally mounted, simply fits in SER2 £45.00

TANDATA MODEMS 1mb, 2Mb and 4Mb AGAIN IN STOCK

ECONOMY MULTI-COMPUTER FLOPPY DISK DRIVE

ECONOMY DRIVE PRICES INCLUDING VAT @ 17½%

CAPACITY:	1Mb DS/DD	2Mb DS/DD	4Mb DS/ED	Duplex2 1144x-2444	Duplex4 1144x-4444
SINGLE DRIVE	£69	£85	£120		
TWIN DRIVES	£99	£150	£199	£135	£175

TELEPHONE RE: UPDATING EXISTING DRIVES. ALSO DETAILS OF HARD DISK DRIVES.

Monitors PHILIPS 14" HIGH RES COLOUR EGA .31 DOT PITCH, FULL 85 COL WITH AMBER OR GREEN TEXT FEATURE, IDEAL FOR WORD PROCESSING, RECONDITIONED, 90 DAY WARRANTY. £149
OK FOR PC AND QL SELF SENSING AND MANY EXT'L CONTROLS. "MONO OPTION" WITH 9" GREEN SCREEN

Microdrive Cartridges and Spares

4 New Cartridges in a wallet £10.00
Plastic Storage filing box including 20 new cartridges £45.00
QL Photo Software V2.35 Includes Quill, Abacus, Archive, and Easel IN WALLET £18.00
QL Photo Software Separate programs £10.00
QL power Supply Unit £10.00 QL Printer I/F £27 Membrane (and instructions) £9.00
TV or Network leads £3.00 QL Top & Bottom Case £3.00
ICs ZX 8301 £9.00 ZX 8302 £3.00 8049 (PC) £3.00 MC 1377 £3.00

QL SERVICE MANUAL & CIRCUITS £25.00 S.A.E. FOR FURTHER DETAILS

Payment terms: CASH, Cheque, VISA or Mastercard
Cheques - allow 10 days
Product subject to availability. EAOE
TEL: 0753 888866
Delivery: Carriage - £9
Postage - £3
MOBILE: 0850 597650
FAX: 0753 887149

TF SERVICES

MINERVA

The ULTIMATE system upgrade

MINERVA RTC (MKII) + battery for 256 bytes ram. CRASHPROOF clock & 14C bus for interfacing. Can autoboot from battery backed ram. Quick start-up.

OTHER FEATURES COMMON TO ALL VERSIONS

DEBURRED operating system/ autoboot on reset or power failure/ Multiple Basic/ faster scheduler/ graphics (within 10% of Lightning) string handling/ WHEN ERROR/2nd zero-trace/ non-English keyboard drivers/ "warm" fast reset V1.97 with split OUTPUT baud rates (+ Hermes) & built in Multibasic.

1st upgrade free. Otherwise send £3 (+£5 for manual if req'd) - Send SAE, Minerva + disk/3 mds.

MK1... £40 RTC (MKII)... £65

GOLD CARD (incl SUPER) compatible

HERMES

A replacement QL co-processor for the QLs awful IPC 8049

- Do you get keyboard bounce?
- Do you find fast serial input unreliable?
- Do you want to connect a fax/modem at 19200bps and send and receive FAXES and/or data.

If you can say one YES, then you need HERMES

- 19700bps RELIABLE serial input - NO QCONNECT
- Independent input baud rates - use serial mouse & print
- Stops keyboard bounce (unwanted repeat chrs)
- Improves "fuzzy" and "random" sound
- Provides extra input/output lines
- Key click

To fit, simply replace the QL 8049 or 8749 chip

£25 including manual/software

QL SPARES

Faulty QL board (no plug-in chips)...£9

Keyboard membrane	£9	Circuit diagrams	£2
68008 cpu	£8	1377 PAL	£3
1M ROM	£10	Power supply	£12
8302 ULA	£10	8301 ULA	£10
8049 IPC	£8	MDV ULA	£12

Other components (sockets etc) please phone

QL REPAIRS

Fixed price for unmodified QLs, excl microdrives. QLs tested with Thorn-EMI rig and ROM software

£27 including 6 month guarantee

QBBS - UK's first QL scrolling Bulletin Board

Megabytes of files. Messages to/from UK/Belgium/Holland/USA/Germany for a UK phone call. TANDATA callers add SIX zeros (000000) or wait for 3 seconds of modem tone if dialling manually. 0344-890987 (up to V32bis)

Prices include post & packing (UK only). Payment by Mastercard/Visa/Access/Eurocard/cheque/postal order/PO Giro transfer (58 267 3909). MAIL ORDER ONLY - no callers without ringing first. Ring for overseas prices.

VISA

Holly Corner, Priory Road, ASCOT, Berks, SL5 8RL

Tel: 0344-890986

Fax & BBS: 0344-890987

MasterCard

QUANTA

Independent QL Users Group

Worldwide Membership is by subscription only, and offers the following benefits:

Monthly Newsletter - up to 40 pages

Massive Software Library - All Free!

Free Helpline and Workshops

Regional Sub-Groups. One near you?

Advice on Software and Hardware problems

Subscription just £14 for UK members

Overseas subscription £17

Barelaycard: Visa: Access: Mastercard

* Now in our ELEVENTH successful year *

Further details from the Membership Secretary

Bill Newell

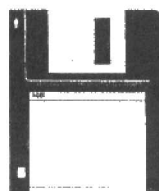
213 Manor Road

Benfleet

Essex

SS7 4JD

Tel. (0268) 754407



Dilwyn's Calendar

Jones and Zellar combine to create a congruent calendar

After seeing the date routines in Hardy Hints in a recent issue of QL World, I wrote this program which uses a formula called Zeller's Congruence to calculate the day of the week on which January 1st falls. It then prints a calendar showing each month to the screen.

The names of the months and number of days per month are held in data statements at the end of the program and read into arrays for ease of use. February has to be a special case, because it can have 29 days in each leap year.

Lines 250 to 360 work out if the year specified is a leap year or not, taking centuries into account as well as the normal four year periods - the year 2000 will be a leap year, for example, but 1900 was not.

The loop called "month_no" runs through all twelve months of the year. Lines 400 to 430 add the extra day in February of each leap year. The loop

called "line_no" starting in line 440 prints each line of the calendar, maximum of 6 lines.

The loop called "column_no" in line 450 prints the seven days of the week across. The variable "day_no" starts from a negative number and once it becomes 1 or higher, it is printed as a date, with a leading space (line 520) if only one digit long (that is, less than 10), to make it look tidier.

The program remembers where each day ended (in which column number) and uses this to work out where to start the next month.

Months are printed consecutively to the screen - all twelve months scroll up the screen. Press Ctrl-F5 to pause the printing to view a given month.

To make the program print a calendar to a printer, open a channel to the printer port you use, eg 365 OPEN #3,SER1

Then duplicate the

PRINT statements in the "month_no" loop, so that they also go this channel, eg 535 PRINT #3,day_no;

Remember to close this channel afterwards, eg 625 CLOSE #3

A form of Zeller's congruence formula is used in lines 210 to 240 to start the date calculations. For more information on Zeller's Congruence, see page 91 of the book Mathematics On The Sinclair QL by C Kosniowski, published by Sunshine Publications. I believe the book is now out of print, but you may be able to buy second-hand copies from QL suppliers such as Qubbesoft P/D, SJPd or QBits.

```
100 REMark QL calendar program by Dilwyn Jones
110 WINDOW 448,200,32,16 : CLS : CSIZE 2,0
120 DIM month$(12,10),days_in_month$(12)
130 RESTORE
140 FOR a = 1 TO 12 : READ month$(a),days_in_month$(a)
150 REPEAT get_year
160   INPUT "Enter year (e.g. 1993):";year%
170   IF year% >= 1752 AND year% <= 4902 THEN EXIT get_year
180 END REPEAT get_year
190 CLS
200 REMark find day of week of January 1st
210 LET century = (year% - 1) DIV 100 : REMark century
220 LET year1 = (year% - 1) MOD 100
230 day_no = 799 + year1 + (year1 DIV 4) + (century DIV 4) - 2*century
240 day_no = -(day_no MOD 7)
250 leap_year = 0 : REMark is this a leap year?
260 IF (year% MOD 4) <> 0 THEN
270   REMark not divisible by 4, not a leap year
280   leap_year = 0
290 ELSE
300   REMark divisible by 4, but what about century?
310   IF (year% MOD 400) = 0 THEN
320     leap_year = 1 : REMark once every 4 century leap year
330   ELSE
340     IF (year% MOD 100) = 0 THEN leap_year = 0 : ELSE leap_year = 1
350   END IF
360 END IF
370 FOR month_no = 1 TO 12
380   PRINT " \ \ TO 11;month$(month_no);' ";year%
390   PRINT " \ TO 4;'SUN MON TUE WED THU FRI SAT'
400   IF month_no = 2 THEN
410     REMark February has 29 days in leap years
420     days_in_month$(month_no) = days_in_month$(month_no) + leap_year
430   END IF
440   FOR line_no = 1 TO 6
450     FOR column_no = 1 TO 7
460       day_no = day_no + 1
470       IF day_no > days_in_month$(month_no) THEN
480         start_next = column_no : EXIT line_no : REMark end of month
490       END IF
500       IF day_no > 0 THEN
510         PRINT " TO column_no*4;
520         IF day_no < 10 THEN PRINT " ";
530         PRINT day_no;
540       END IF
550     END FOR column_no
560     start_next = 1 : REMark previous ended on Saturday
570     PRINT : REMark go to start of next line
580     IF day_no = days_in_month$(month_no) THEN EXIT line_no
590   END FOR line_no
600   day_no = 1 - start_next : REMark where does next month start
610   PRINT
620 END FOR month_no
630 REMark data for names of months, and days per month
640 DATA "JANUARY",31,"FEBRUARY",28,"MARCH",31,"APRIL",30
650 DATA "MAY",31,"JUNE",30,"JULY",31,"AUGUST",31
660 DATA "SEPTEMBER",30,"OCTOBER",31,"NOVEMBER",30,"DECEMBER",31
```

NOVEMBER 1993

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER 1993

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

DJC

Dilwyn Jones Computing

41 Bro Emrys, Tal-y-Bont,
Bangor, Gwynedd LL57 3YT U.K.

Fax/Tel: Bangor (0248) 354023

DATABASE SOFTWARE

COCKTAILS WAITER.....	£10.00
DATA DESIGN 3 [P].....	£60.00
DATA DESIGN API.....	£20.00
DBEASY.....	£15.00
DBPROGS.....	£15.00
FLASHBACK.....	£25.00
FLASHBACK SE.....	£40.00
SUPER DISK INDEXER.....	£12.00

DTP & CLIPART

PAGE DESIGNER 3 [TP].....	£40.00
UPGRADE FROM PD2.....	£25.00
SCANNED CLIPART 1 [U].....	£10.00
SCANNED CLIPART 2 [U].....	£10.00
THE CLIPART [U].....	£12.00

EMULATORS

ZM/128.....	£28.00
New 48k & 128k Spectrum emulator.	
ZM/hr.....	£40.00
Includes ZM/128 and Z80 code compiler for FAST emulation.	

FILE HANDLING

FILE MASTER [R].....	£12.00
FILES 2 [U].....	£12.00
4MATTER & LOCKSMITH.....	£23.50
LOCKSMITH[U].....	£14.95
MDV TOOLCHEST.....	£14.95
THE GOPHER [U].....	£12.00
WINBACK 2.....	£25.00

FILE TRANSFER

CONVERT-PCX.....	£10.00
DISCOVER.....	£20.00
MULTI-DISCOVER.....	£30.00
OPD INTERCHANGE.....	£15.00
OPEN WORLD.....	£18.00
New! Convert GIF, IFF, TIF or CUT images to mode 4 or 8. Use with a program such as Discover.	
QL-PC FILESERVER.....	£24.50
SToQL.....	£12.50
TEXTIDY.....	£15.00

GAMES & LEISURE

FIVE GAME PACK [U].....	£12.50
FLEET TACTICAL COMMAND [U].....	£39.95
FTC DATA PRINTER.....	£9.95
FLIGHTDECK [U].....	£15.00
FUGITIVE.....	£ 9.95
GREY WOLF.....	£12.50
OPEN GOLF.....	£12.50
QUESTION MASTER [U].....	£10.00
QUIZ MASTER 2 [U].....	£12.50
RETURN TO EDEN.....	£17.50
SOLITAIRE [U].....	£15.00
SQUIDGY ROUND THE WORLD [U].....	£12.50

GENEALOGY

GENEALOGIST 3 [TP].....	£60.00
Upgrade 2nd Edition.....	£33.00
upgrade other versions, ask!	
GENEALOGIST 2ND EDITION.....	£30.00
BUDGET 128K GENEALOGIST [U].....	£12.00

GRAPHICS

IMAGE-D [U].....	£10.00
IMAGE PROCESSOR.....	£15.00
LINE DESIGN 2 [TP].....	£100.00
New, much improved version 2.	
PAINTER [P].....	£25.00
PICTUREMASTER.....	£15.00
PICTUREMASTER PLUS.....	£20.00
QRACAL [P].....	£20.00
QUICK MANDELROT 3 [U].....	£15.00
SCREEN COMPRESSION.....	£10.00
SCREEN SNATCHERS.....	£10.00
SIMPLE VIDEO TITLES.....	£ 5.00
TRANS24 [U].....	£10.00

HARDWARE

MICRO PROCESS CONTROLLER.....	£64.50
MPC SOFTWARE.....	£ 9.95
NETWORK PROVER.....	£ 4.00
QPOWER REGULATOR.....	£24.95
(unsuitable Gold Cards)	
SERMOUSE (now super gold card compatible).....	£40.00
SYSTEM AMADEUS -New hardware system.	
Voice	
Analysar/Sound, bidirectional centronics, DIY interface and more, ask for prices and details!	
Add £2.50 postage for MPC, SERMOUSE and AMADEUS.	

LABELLING

ADDRESS BOOK & LABEL PRINTER [R].....	£15.00
SUPER DISK LABELLER.....	£10.00

MAGAZINES

QREVIEW (issues 1 to 3).....	£ 2.00
QL TECHNICAL REVIEW set of 8... UK price.....	£12.00
Europe...£16.00 Other countries.....	£25.00
QL ADVENTURER'S FORUM set of 11...UK.....	£14.00
Europe...£20.00 Other countries.....	£30.00
QL Adventurers Forum includes 2 issues of Leisure Review. Both are games magazines.	

MUSIC

MUSIC MANAGER.....	£12.00
New, simple to use program to create and play tunes on a QL.	

PROGRAMMING

BASIC REPORTER [U].....	£10.00
DEA.....	£26.00
New powerful intelligent machine code disassembler.	
DISA 2 [P].....	£40.00
Brand new version of this disassembler.	
DJTOOLKIT [U].....	£10.00
EASYPTR 3 PART 1 [P].....	£40.50
EASYPTR 3 PART 2 [P].....	£20.00
EASYPTR 3 PART 3 [P].....	£20.00
MASTERBASIC.....	£22.00
New! Superbasic programming aid.	
MEGATOOLKIT DISK [U].....	£25.00
MEGATOOLKIT EPROM [U].....	£40.00
QLIBRARY MANAGER.....	£18.00
New! Superbasic programming aid.	
QLIBERATOR 3.36 [P].....	£50.00
BUDGET QLBERATOR [U].....	£25.00
QLOAD AND QREF [U].....	£15.00
S EDIT EDITOR.....	£20.00
TOOLKIT 2 [U] disk/mdv.....	£19.95
EPROM.....	£24.95

SCREEN DUMPS

SIDEWINDER PLUS.....	£24.95
----------------------	--------

SPREADSHEET PRINTING

SIDEWRITER [UP].....	£15.00
3D TERRAIN.....	£12.50

SUNDRIES

3.5" DSDD DISKS each.....	£0.40
3.5" DSHD DISKS each.....	£0.70
3.5" DISK LABEL (roll 100).....	£2.00
3.5" LABELS (printer roll).....	£2.50
ADDRESS LABELS (roll 100).....	£2.00
MICRODRIVE CARTRIDGES.....	£2.50
MDV LABELS (roll 100).....	£2.00
MOUSE MAT.....	£2.50
3.5" DISK DIVIDERS (20).....	£3.00
Add £0.50 postage for labels or mouse mat if only ordering those, or £2.50 postage for disks or disk box divider sets	

TEXT

BANTER BANNERS.....	£25.00
BIBLE TEXT.....	£20.00
DESKJET-A5 [P].....	£12.00
New! Print 2 pages side by side in landscape print on A4 paper on a HP Deskjet 500 or similar printer.	
QINDEX [TP].....	£20.00
New text file indexing system,	
QTYPE2 [P].....	£29.95
QUICK POSTERS [U].....	£10.00
ROB ROY PACK [U].....	£10.00
SPELLBOUND.....	£30.00
SPELLBOUND SE.....	£50.00
TEXTIDY.....	£15.00
TEXT 'N' GRAPHIX.....	£20.00

OTHER SOFTWARE

CUE-SHELL [TP].....	£40.00
New QL desktop system.	
FLOPPY DISK UTILITIES.....	£18.00
New! Ergon Development's disk editor with file recovery, even for ED disk users.	
HOME BUDGET [U].....	£20.00
PRINTERMASTER [U].....	£20.00
QPAC1 [P].....	£19.95
QPAC2 [P].....	£39.95
THE Pointer Environment package!	
QTOP [P].....	£29.95
SCREEN DAZZLER.....	£15.00
SCREEN ECONOMISER [U].....	£10.00
SLOWGOLD [U].....	£ 5.00
SPEEDSCREEN [U].....	£15.00
SPEEDSCREEN EPROM [U].....	£30.00
TASKMASTER.....	£25.00
VISION MIXER 1.....	£10.00
VISION MIXER PLUS.....	£22.50

CALL OR WRITE FOR A FREE COPY OF OUR QL SOFTWARE CATALOGUE, WITH AROUND 100 QL PRODUCTS, WITH FAR MORE DETAIL THAN WE COULD INCLUDE IN THIS ADVERT!

PLEASE NOTE: [U] ABOVE MEANS THAT THE SOFTWARE IS SUITABLE FOR USE ON A 128K QL. [R] MEANS RAMDISK REQUIRED. [T] MEANS TOOLKIT REQUIRED. [P] MEANS POINTER DRIVEN (MOUSE OR KEYBOARD).

TERMS: POSTAGE-software sent post free to UK, overseas add £1.00 per program (maximum £3.00). Floppy disks, SERMOUSE, etc. add £2.50 postage (see above). PAYMENT - In UK currency (pounds sterling) only, please. Valid methods of payment are cheque drawn on UK branch of bank or building society, Eurocheque, Postal Order, cash (send by registered post) or by credit card - Visa, Access, Mastercard and Eurocard accepted. Make cheques etc payable to DILWYN JONES COMPUTING. Minimum order value £5.00 (due to bank charges). Goods remain property of Dilwyn Jones Computing until paid for in full. Orders normally sent out within a few days of receipt, we attempt to advise if any delay anticipated due to stock problems. Orders can be accepted by telephone if paid for with credit card. Orders paid with credit card can only be sent to cardholder's address under card company rules. FAX - We now have a fax machine on our usual number (0248) 354023.

